THE IRON TRADE REVIEW

Volume LI CLEVELAND, AUGUST 8, 1912 Number 6

Great Tonnage of Pig Sold and Prices Advance

Danger of Quotations on Finished Materials Being Boosted Too Rapidly—Railroads Ordering Cars and Rails More Freely

Great activity in pig iron with steady, but moderate advances in prices, and the tremendous pressure on mills for delivery of all kinds of finished materials are the prominent characteristics of the present situation. The policy as to prices varies among the mills in different sections. In the Chicago district, mills are filled to overflowing with business for this year, and consequently are indifferent as to price advances. They will content themselves by making deliveries as fast as possible and not entering into any contracts for delivery after the first of the year. In the Pittsburgh district, premiums are seldom asked, but eastern mills are reaping a rich harvest and in some cases are getting $5 per ton in premiums. Men of long experience, who more than once have seen prosperity spoiled by too rapid price advances, are sounding a note of warning lest present happy conditions be changed.

Pig Iron Activity

A tremendous volume of business has been transacted in pig iron recently and it is evident that many transactions have not been made public, as sellers are fearful of encouraging an increase of production of pig iron. It is estimated that in the Pittsburgh and valley districts 300,000 tons of pig iron have been purchased since July 1, and heavy tonnages are still pending. Advances of 50 cents a ton on basic, foundry and malleable grades have been made at Pittsburgh, and there is a tendency upward throughout the country. More interest is being shown in pig iron for the first half of next year, on which quotations are usually from 50 to 75 cents higher than for delivery this year. A leading southern producer is quoting $13, Birmingham, for No. 2, for delivery through the first half of next year. A New Jersey stove manufacturer is in the market for 2,500 to 5,000 tons of foundry iron for the first quarter of 1913. Sales in the Philadelphia district include 25,000 tons of basic at $15.75, delivered, and 4,000 tons of malleable for delivery after Jan. 1, at $16.70, delivered. A Lynchburg, Va., pipe foundry is in the market for 6,000 tons of No. 3 forge. About 25,000 tons of various grades are pending in New York City territory and 50,000 tons at Buffalo, where price advances are about to be announced. A St. Louis steel casting foundry purchased 6,000 tons of basic at close to $12, Birmingham.

Corporation Business

New business of the United States Steel Corporation for the first week in August has been running heavier than in July in spite of the fact that July will show a round increase in orders. The labor situation with the Corporation and some independents has improved to some extent, but many plants are suffering from labor shortage. Advances in prices of wire and tin plate are expected this month. Price advances this week include $2 a ton on oil country pipe and charcoal iron tubes and a further advance of $1 a ton on spikes.

Railroad Buying

Railroads have at last come to the full realization of the importance of placing orders early and about 200,000 tons of rails have been ordered for first quarter delivery from Corporation mills. The principal buying has been done by three western systems, each of which has placed orders of 50,000 tons or more equally divided between open-hearth and Bessemer. Railroads are also buying freely additional tonnages for November-December delivery, of which about 75,000 tons have been booked. It is expected that orders for next year will now appear rapidly. New equipment orders placed during the past week have been numerous. Inquiries include 5,000 additional cars for the New York Central lines and 4,000 for the Harriman system. The Pennsylvania and Baltimore & Ohio railroads are expected to come into the market soon for a large number of cars, probably 10,000 for each system. Awards of the week include 1,000 steel gondolas for the Pittsburgh & Lake Erie of the unusual length of 48 feet. The Grand Trunk system has ordered 2,000 box cars, and the Virginian, 700 hoppers.

Blast Furnace Production

The production of coke and anthracite pig iron for July was 2,398,497 tons, a decrease of 35,240 tons, compared with June. This decrease was due almost entirely to the fact that it became necessary to blow out a number of blast furnaces of steel works in order to make repairs. The number of stacks active on the last day of July shows an increase of three, compared with the active list on June 30, and a number of steel works and merchant stacks are now preparing to blow in. Hence, it is confidently expected that August production will show an increase.

PITTSBURGH

Tremendous Tonnage of Pig Iron Sold

Office of THE IRON TRADE REVIEW, 2148-49 Oliver Bldg., Aug. 6.

Caution and restraint in advancing iron and steel products to higher values is being counselled by leading steel manufacturers who foresee a restricted buying movement if prices are increased too rapidly. Regardless of the contingency, local mills refuse to accept premiums, and this practice, which already is a disturbing factor in the east, will not be pursued in this district. On the average, deliveries of all steel products are deferred eight weeks, and as specifications and new tonnage continue greatly in excess of production, shipments gradually will be further postponed. Under these conditions, no difficulty is being experienced in maintaining prices and the tendency is toward higher values, notably on tin plate and wire products. The benefits accruing to the mills from the advanced prices recently established are negligible, as the great bulk of the tonnage that is being rolled was booked at prices considerably lower than are now prevailing.

The sharp advance in all grades of pig iron, approximately 50 cents a ton for the week, was by no means an unexpected development in view of the recent heavy purchases, which easily aggregate 300,000 tons. The absorption of basic has been tremendous and only a small tonnage is available for delivery the remainder of the year. That the present quotations are attractive to the owners of idle furnaces is indicated by the number of stacks that are being prepared for early resumption. The increased output will subject pig iron prices to a severe test, and at least will serve as a temporary check to a rapidly advancing market. Two steel works and one merchant furnace have gone in this week and coke is being purchased for the requirements of five idle stacks. The furnace coke deadlock has at last been broken and the market has been established on a basis of $2.25, ovens, for delivery the remainder of the year.

The production of all finished products continues at a record rate and all available mills capacity is busily engaged. The leading interest is operating its sheet and tin plate capacity on a basis of 85 and 94 per cent, respectively, while the Cambria Steel Co.'s output for last month exceeded the total for any previous July by 25 per cent. Price advances include an increase of $2 a ton on all oil country goods and charcoal iron tubes, while spikes have again been marked up $1 a ton. Warehouse prices on bars and shapes were advanced $1 by the Carnegie Steel Co. on Aug. 5.

Pig Iron.—Advances of 50 cents a ton on basic, foundry and malleable grades reflect the continued activity of the pig iron market. It is conservatively estimated that 300,000 tons of iron have been purchased in this and the valley districts since July 1, for delivery the remainder of the year. This total includes 18,000 tons of foundry and forge for the Westinghouse Air Brake Co., 13,000 tons of mixed grades for the Standard Sanitary Mfg. Co., 50,000 tons of Bessemer and 20,000 tons of gray forge for the Youngstown Sheet & Tube Co., 15,000 to 45,000 tons of basic for the Pittsburgh Steel Co., 5,000 tons of basic each for the Carbon Steel Co., Colonial Steel Co. and the Allegheny Steel Co., while the Mesta Machine Co. and other large foundry interests figured actively as large buyers. The greater part of the tonnage was closed at $14, valley, for Bessemer, $13.25 for gray forge, and $13.50 for No. 2 foundry and basic. Continued heavy buying during the week advanced prices to $13.75 for basic and foundry and early this week furnace operators asked $14 for these grades. The available tonnage of basic for shipment to Jan. 1, is limited and one operator whose furnace is in the Pittsburgh zone is quoting the equivalent of $14.20, valley furnace. As expected, higher prices will result in increased production. The Jones & Laughlin Steel Co. has blown in stack No. 4 at its Aliquippa plant, furnace "A" at the Riverside plant of the National Tube Co., Benwood, W. Va., is again operating after three months' idleness for relining and Mattie furnace of E. M. Beyers & Co., Girard, O., has resumed. Other furnaces that are being prepared for the torch include one Susquehanna stack of the Rogers-Brown Iron Co., Buffalo; Alice of the Valley Mould & Foundry Co., Sharpsville, Pa., and one stack each at Birdsboro and Catasaqua, Pa. Shenango No. 4, at Sharpsville, Pa., is the only furnace added to the idle list; it has gone out for relining. That steel works furnace production is inadequate is indicated by the tentative inquiry for 50,000 to 100,000 tons, by one interest and it is probable that other large consumers will figure actively in the market in the near future. The Pittsburgh Steel Co.'s requirements have not been fully met and it is probable that 50,000 tons of basic, in addition to that already taken, will be purchased for the fourth quarter. Bessemer iron is firm at $14.50, valley, having advanced to this basis immediately after the Youngstown Sheet & Tube purchase. The basic and Bessemer averages for July, compiled by one interest, were $13.48 and $14.25, valley, respectively, representing an advance since the first of the year of $1.108 on basic and 17.2 cents on Bessemer.

Pig iron quotations for prompt and future shipments follow:

(Prompt Shipment.)

Bessemer, valley	$14.50
Bessemer, Pittsburgh	15.40
Basic, valley	14.00
Basic, Pittsburgh	14.90
No. 2 foundry, Pittsburgh	14.90
Gray forge, Pittsburgh	14.25
Malleable, Pittsburgh	14.90

(Fourth Quarter.)

Bessemer, valley	$14.50
Bessemer, Pittsburgh	15.40
Basic, valley	$13.90 to 14.00
Basic, Pittsburgh	14.80 to 14.90
No. 2 foundry, Pittsburgh	14.65 to 14.90
Gray forge, Pittsburgh	14.15 to 14.25
Malleable, Pittsburgh	14.65 to 14.90

Ferro-Alloys. — Practically all the large consumers of ferro-manganese covered their requirements to July 1, next year, prior to the recent advance and current sales are limited to small lots. For early delivery, $52 seaboard is quoted, although on extended contracts $51 can be done. Electrolytic ferro-silicon, 50 per cent, is held at $72.50 for both prompt and forward shipments. Practically all the large buyers contracted for their needs earlier in the year and current sales involve tonnages in excess of these contract requirements.

We quote 80 per cent ferro-manganese at $52, Baltimore, for prompt delivery and $51 for forward shipment. The freight rate from Baltimore to Pittsburgh is $1.95 per ton.

Fifty per cent ferro-silicon is quoted nominally at $72.50, Pittsburgh, for prompt

and forward delivery; 12 per cent, $22; 11 per cent, $21; 10 per cent, $20, f. o. b. Globe, Jisco and Ashland furnaces. The freight rate to Pittsburgh is $1.90. The foreign grades are held at $1 or more a ton over domestic prices.

On ferro-titanium we quote 8 cents per pound for carload lots; 10 cents per pound for 2,000 pound lots and over, and 12½ cents per pound in lots up to 2,000 pounds.

Plates.—The plates for the four new ships placed with the Wm. Cramp & Son Ship & Engine Building Co., Philadelphia, have not yet been placed with the local mills, although the order, which will involve approximately 12,000 tons, is expected within a few days. Orders for 1,000 cars each have been placed by the Pennsylvania Lines West and the Pittsburgh & Lake Erie railroad. The Pennsylvania contract was divided equally between the Pressed Steel Car Co. and the American Car & Foundry Co., and the Lake Erie requirements will be furnished jointly by the Pressed Steel Car Co. and the Standard Steel Car Co.. It is reported that 5,000 cars for the New York Central were placed with the American Car & Foundry Co. Local mills as well as the Cambria Steel Co. are not exacting premiums on new universal plates, although this is the practice in the east on orders for prompt shipment. The congestion of tonnage on mill order books is being accentuated from week to week and deliveries are deferred from eight weeks to three months.

Plates are firm, but unchanged, at the following prices:

Tank plates, ¼ inch thick, 6¼ to 100 inches, 1.30c to 1.35c. Extras are as follows per 100 pounds: Boiler and flange steel plates, 0.10c; A. B. M. and ordinary firebox steel plates, 0.20c; still bottom steel, 0.30c; marine steel, 0.40c; locomotive firebox steel, 0.50c; all sketches excepting straight taper plates varying not more than 4 inches in width at ends, narrowest end being not less than 30 inches 0.10c; circles, 0.20c. Plates in widths over, 100 inches up to 110 inches 0.05c; over 110 inches up to 115 inches, 0.10c; over 115 inches up to 120 inches, 0.15c; over 120 inches up to 125 inches, 0.25c; over 125 inches up to 130 inches, 0.50c; over 130 inches, 1c. Gages under ½ inch to and including ⅜-inch plate on thin edge, 0.10c; under ⅜ and including No. 9, 0.25c. Five cents extra for less than carloads. Terms net cash in 30 days.

Sheets.—With new tonnage and specifications 50 per cent in excess of the output, it becomes evident that the recently established price can be firmly maintained. The market tendency is strongly toward higher values and any weakness that may have prevailed in galvanized sheets has entirely disappeared. With spelter at present prices the mills are unable to make a profit on the galvanizing operation. Shipments on both black and galvanized sheets are deferred six to eight weeks and the avalanche of tonnage that is being placed on mill order books is further postponing the date of delivery. In spite of the warm weather early in the month and high water and washouts during the last week, July was the banner month for output in the history of the sheet industry. All of the mills are operating in full and the leading interest continues at 85 per cent capacity, which is phenomenal at this season of the year. Prior to the recent advance, builders of automobile bodies covered their season's requirements and the new tonnage is being received largely from other manufacturing industries. Jobbers' stocks throughout the country are exceedingly low, and, owing to the heavy store demand and the deferred mill shipments, they are unable to accumulate an assortment of varied sizes and gages.

Black, blue annealed and galvanized sheets and roofing are quoted as follows:

Flat Sheets.

Black Sheets.—Nos. 10-12 gage, $1.70 per 100 pounds; Nos. 13-14 gage, $1.75; Nos. 15-16 gage, $1.80; Nos. 17-21 gage, $1.85; Nos. 22-24 gage,$1.90; Nos. 25-26 gage, $1.95; No. 27 gage, $2.00; No. 28 gage, $2.05; No. 29 gage, $2.10; No. 30 gage, $2.20.

Tin mill sizes base 5 cents per 100 pounds under these prices.

Blue Annealed.—Nos. 3-8, $1.40 per 100 pounds; Nos. 9-10, $1.45; Nos. 11-12, $1.50; Nos. 13-14, $1.55; Nos. 15-16, $1.65.

Galvanized.

Nos. 10-11 gage, $2.15 per 100 pounds; Nos. 12-14 gage, $2.25; Nos. 15-16 gage, $2.40; Nos. 17-21 gage, $2.55; Nos. 22-24 gage, $2.65; Nos. 25-26 gage, $2.85; No. 27 gage, $3.00; No. 28 gage, $3.15; No. 29 gage, $3.25; No. 30 gage, $3.45.

Roofing Sheets.

Net extras on all gages per 100 pounds. Corrugated 2-inch, 2½-inch, 3-inch and 5-inch corrugation, 5c; 2 V crimped without sticks, 5c; corrugated 1¼-inch corrugation, 10c; 3 V crimped without sticks, 10c; pressed standing seam with cleats, 15c; plain roll roofing with or without cleats, 15c.

Painted Roofing.

12 to 18 gage, inc., 5c; 19 to 24 gage, inc., 10c; 25 to 28 gage inc., 15c.

Tin Plate.—An early advance of 10 cents a box on coke plate is being discussed by the trade and several mills will not accept contracts for extended deliveries at present prices. The output of the mills in July broke all previous records and August is expected to exceed last month's total. Unusually heavy shipments are being made to the can factories for the canning trade and deliveries are deferred from six to eight weeks. The leading interest is now operating 94 per cent of its capacity, but the output is inadequate to meet the requirements. Another addition to the tin plate capacity is projected in the Wheeling district, which will consist of a 10-mill plant.

The following quotations are being firmly maintained:

Coke tin plate, 100-pound basis, 14 x 20, $3.50, f. o. b. mill, Pittsburgh district.

Rails and Track Material.—The contract period for rails this year has been practically terminated and the orders that are being received from the railroads are for small lots in excess of their contracted tonnages. Leading trunk lines are now making reservations for next year and the aggregate tonnage is large. At the present time, the Edgar Thomson plant of the Carnegie Steel Co. is operating on Bessemer rails and the entire Bessemer steel producing capacity is engaged. From present indications, the converters will continue maximum operations until the end of the year, as any surplus steel not required for the rail mill is rolled into sheet bars, for which there is an exceedingly heavy demand. Both standard and small spikes have been advanced $1 a ton, to $1.65 and $1.70, respectively. The demand for track material is heavy and is in proportion to the heavy consumption of rails. As many of the plants equipped to roll light rails have placed their mills on bars, which afford a better return on the steel considering the present spread between light rails and bars, the output has been greatly curtailed and the light rail mills are experiencing little difficulty in maintaining the recently established quotations. A feature of the standard rail market is the reservation of the 1913 output of open-hearth rails of the Edgar Thomson plant. The battery of 14 open-hearth furnaces now under erection at these works will be fired early next year.

Rails are quoted as follows, with the base price on open-hearth standard sections, 1.34c per pound at the mill:

Fifty-pound and heavier, 1.25c per pound; carloads and less than 500 tons, 1.34c per pound; light rails on base weight of 40 to 45 pounds; 1.19c, the schedule on the other weights being irregular and subject to negotiations; angle bars for standard sections, 1.50c, Pittsburgh; track bolts, 2.00c to 2.10c, Pittsburgh.

Railroad Spikes.

4½, 5 and 5½ and 9-16	$1.65 to 1.70
3, 3½, 4, 4½ and 5 x ½	.10
3½, 4 and 4½ x 7-16	.20
3, 3½, 4 and 4½ x ⅜	.30
2½ x ⅜	.40
2½, 3 and 3½ x 5-16	.60
2 x 5-16	.80

Billets.—Open-hearth billets, sheet and tin bars continue exceedingly scarce and small tonnages for early shipment have been sold at prices

varying from $23.50 to $24, Pittsburgh. On the other hand, Bessemer billets are quoted at $22 to $22.50 and Bessemer sheet and tin bars can be had at $22.50 to $23. Practically all of the large consumers are covered to the first of the year and the orders that are being placed provide for material in excess of estimated needs. Three of the largest manufacturers of billets are out of the market and will have no surplus steel until the end of the year.

The following quotations prevail:

Bessemer 4 x 4 billets with 0.25 carbon and less are quoted at $22 to $22.50, with the usual extra for size and analysis, and open-hearth rolling billets, $23 to $23.50. Bessemer sheet and tin bars are quoted at $22.50 to $23.00, and open-hearth sheet bars are quoted at $23.50 to $24.00, f. o. b. Pittsburgh and Youngstown for third quarter, with full freight to destination added. Forging billets are quoted at $28.00 to $29.50, Pittsburgh.

Hoops and Bands.—The demand for hoops and bands continues in excess of production and prevailing quotations are easily maintained.

Prices are unchanged as follows:

Hoops in carload lots, $1.40c, Pittsburgh; in less than carload lots, 1.50c; bands 1.25c, base, with net extras, as per standard steel.

Merchant Bars. — Notwithstanding the fact that the agricultural implement manufacturers covered their requirements some months ago to July, next year, the new tonnage that is being booked, together with the specifications, is easily 50 per cent in excess of production. Bolt and rivet makers, the railroads and car works are placing large orders with the mills, for delivery through the remainder of the year. To eliminate the speculative feature from all new orders, the tonnages are being carefully investigated and, if necessary, are reduced to meet the views of the mills. In addition, the unspecified tonnage on monthly contract allotments is being cancelled, thereby preventing the accumulation of unfilled orders. Iron bars are firm at 1.40c to 1.45c, Pittsburgh. Steel shafting is firm at 64 per cent off for carload lots and 59 per cent off for less than carload lots. Warehouse prices of merchant and reinforcing bars have been advanced $1 by the Carnegie Steel Co. Iron and steel bar quotations follow:

Common iron bars, 1.40c to 1.45c, Pittsburgh; Bessemer and open-hearth steel bars, 1.25c; plow and cultivator, 1.25c; channels, angles, zees, tees, under 3 inch, 1.25c, all f. o. b. mill. The following differentials are maintained on steel: Less than 2,000 pounds of a size, 0.35 advance. Cold rolled, and ground shafting, 64 per cent off in carloads and 59 per cent in less than carloads, delivered in base territory.

Muck Bar.—Quotations are practically nominal at $30 to $31, Pittsburgh. All of the mills are consuming their output and have no tonnages to offer.

Structural Shapes. — Shipments for material now being placed with the mills cannot be made in less than three months. Locally no large projects are being undertaken, but the fabricators report sufficient orders to keep their works fully engaged during the next three months. Warehouse quotations have been advanced $1 by the Carnegie Steel Co. The following mill prices are firm, but unchanged:

Beams and channels, 15 inches and under, zees, 1.30c to 1.35c; tees, 1.30c to 1.35c; angles, from 3 to 6 inches 1.30c to 1.35c; over 6 inches, 1.40c to 1.45c; universal and sheared, 1.35c to 1.40c; over 15 inches, 1.40c to 1.45c; plates, 6¼ inches wide and wider, 1.40c to 1.45c.

Merchant Pipe.—Although July production exceeded all previous records, new tonnage and specifications greatly exceeded the output. Jobbers' stocks are low and the heavy store demand, coupled with deferred mill shipments, makes it practically impossible to accumulate an assortment of sizes. Several makers of iron pipe are asking an advance of $2 a ton, although no official list has been issued. On Aug. 1, the prices of oil country goods were increased $2 a ton. Discounts to jobbers, subject to the usual preferential discount to the large buyer, are as follows:

Iron and Steel Pipe Basing Prices.

	Steel.		Iron.	
	Butt weld.			
	Black.	Galv.	Black.	Galv.
⅛, ¼ inch.....	72	52	68	48
⅜ inch	73	63	69	53
½ inch	76	66	72	59
¾ to 1¼ inch.....	80	71	75	64
2 to 3 inches.....	81	73	76	65
	Lap weld.			
2 inches	77	70	72	63
2½ to 4 inches.....	79	73	74	66
4½ to 6 inches.....	78	70	73	65
7 to 12 inches.....	76	66	71	61
13 to 15 inches.....	53	..	47	..
Extra Strong, Plain Ends.				
			Butt weld.	
⅜, ¼, ⅛ inch.....	68	58	65	55
½ inch	73	67	70	63
¾ to 1¼ inch.....	77	71	74	65
2 to 3 inches.....	78	73	75	66
Extra Strong, Plain Ends.				
			Lap weld.	
2 inches	74	68	71	63
2½ to 4 inches.....	76	70	74	66
4½ to 6 inches.....	75	69	72	65
7 to 8 inches	68	58	65	55
9 to 12 inches.....	63	53	60	50
Double Extra Strong, Plain Ends.				
			Butt weld.	
½ inch	63	57	60	52
¾ to 1¼ inch.....	66	60	63	55
2 to 3 inches.....	69	62	65	57
Double Extra Strong, Plain Ends.				
			Lap weld.	
2 inches	64	58	61	52
2½ to 4 inches.....	66	60	63	57
4½ to 6 inches.....	65	59	62	56
7 to 8 inches.....	58	52	55	45

Plugged and reamed pipe is furnished at 2 points higher price, either butt or lap weld.

The above discounts are for full weight pipe, subject to a variation of 5 per cent, merchant pipe, when specified, being furnished up to 6 inches at one point higher discount (lower price).

Boiler Tubes.—The buying of tubes for locomotives and stationary boilers continues very heavy and prevailing prices are firmly maintained. Discounts on charcoal iron tubes have been revised on a basis which provides for an advance of $2 a ton. Official discounts have been changed as follows:

	Steel	Iron
1½ inch	59	47
1¾ to 2¼ inch.....	59	48
2½ inch	65½	53
2¾ to 3¼ inch	70½	55
3½ to 4½ inch	73	58
5 and 6 inch.....	65½	..
7 to 13 inch.....	63	..

To destination east of Mississippi river will be sold at delivered discount for carloads lowered by 2 points, for lengths 22 feet and under; longer lengths, f. o. b. Pittsburgh. Usual extras to jobbers and boiler manufacturers.

Wire. — Another advance on wire products is anticipated at an early date. Prevailing prices are proportionately much lower than those maintained on other finished products and an effort will be made to close up this disparity in values. New tonnage in all lines is heavy and jobbers' stocks continue at low ebb. Prices are firm as follows:

Wire nails, jobbers' carload lots, $1.60 to $1.65; retailers' carload lots, $1.65 to $1.70; cut nails (western makers), jobbers' lots, $1.60 to $1.65, painted barb wire, jobbers' carload lots, $1.65 to $1.70; retailers' carload lots, $1.65 to $1.70, with 30c for galvanizing; plain wire to jobbers in carloads, $1.40 to $1.45; and to dealers, in carloads, $1.45 to $1.50; polished staples, $1.60 to $1.65; galvanized staples, $1.90 to $1.93.

Wire Rods. — Specifications against contracts are heavy, although the new tonnage is comparatively light. Bessemer rods are quoted at $26 and open-hearth, $27, Pittsburgh.

Coke.—The deadlock on furnace coke which has existed for several months, has been effectively broken by several sales at $2.25, ovens, to cover furnace requirements to the end of the year. Two idle stacks have gone into commission during the week, and coke for five additional furnaces which are preparing to resume is now under negotiation. Several operators are quoting $2.25 on furnace coke for August and September delivery only, and are inclined to hold for higher prices through the fourth quarter. One interest, however, is asking a flat price of $2.25 for shipment to Jan. 1, and until this output is disposed of, it will be difficult to establish higher quotations for forward deliveries. Strictly 72-hour Connellsville foundry coke is selling at $2.60 to $2.75 and only off grades can be obtained at lower prices. According to the

Connellsville Courier, the coke production of the Connellsville district for the week ending July 27, was 315,723 tons as compared with 355,108 tons the previous week, a decline of 39,385 tons. The falling off in shipments was approximately 1,200 cars. The decrease in the output was divided almost equally between the so-called furnace and merchant ovens. We quote:

Connellsville furnace	$2.25 to 2.30
Connellsville furnace contract	2.25 to 2.35
Connellsville foundry	2.60 to 2.75
Connellsville foundry contract	2.60 to 2.75

Old Material.—There has been a good demand for heavy melting steel during the week, although the price remains unchanged at $13.50. Several other items, however, have been advanced slightly and it is probable that other increases in values will be announced shortly. Bundled sheet scrap is now quoted at $12 to $12.50, having been advanced within the last few days, and stove plate has been marked up $1 a ton. One of the local dealers reported a sale of No. 1 wrought scrap at $14.25, although some of this material continues to be offered at $14. Low phosphorus melting stock has advanced. Machine shop turnings, on the other hand, have declined slightly in value. Considerable complaint is heard from dealers about the difficulty of obtaining and disposing of material. This is because much of the scrap is being held for better prices and much of the stock offered by the railroads is going direct to the consumers. The embargo against one of the local steel companies, which had as many as 250 cars on its tracks a short time ago, has been lifted. We quote gross tons, delivered in the Pittsburgh district, including Monessen, Steubenville, Brackenridge and Follansbee, as follows:

Heavy melting scrap	$13.50 to 13.60
Rerolling rails	14.25 to 14.50
Malleable	12.75 to 13.00
Bundled sheet scrap	12.00 to 12.50
Iron axles	22.00 to 22.50
Old iron rails	15.50 to 16.00
Stove plate	10.00 to 10.50
No. 1 wrought scrap	14.00 to 14.25
Old car wheels	15.75 to 16.00
Low phosphorus	16.00 to 16.25
Machine shop turnings	10.75 to 11.00
Cast borings	10.00 to 10.25
No. 1 cast scrap	13.25 to 13.50

CLEVELAND

High Price for Plates---Inquiries for Ore

Office of THE IRON TRADE REVIEW, Penton Bldg., Aug. 6.

Iron Ore.—July made a better showing than was expected in iron ore shipments. It was thought that the movement would hardly be equal to that of June, but it was 7,600,283 tons, while the June movement was 7,567,555 tons. July, however, had one more shipping day. It is expected that the August movement be about equal to that of July.

Some furnaces are still inquiring for ore, but there is very little choice ore left. One agency this week was unable to sell a furnace company 50,000 tons of old range Bessemer. Good Bessemers are extremely scarce and regular prices are being rigidly adhered to.

On base ores with the guarantee of 55 per cent on old range and Mesabi Bessemer, and 51½ per cent on old range and Mesabi non-Bessemer, we quote as follows: Old range Bessemer, $3.75; Mesabi Bessemer, $3.50; old range non-Bessemer, $3.00; Mesabi non-Bessemer, $2.85.

Pig Iron. — A Cleveland furnace which is quoting $14, furnace, for No. 2 foundry made a sale of 400 tons at that price for last half delivery for shipment outside of the city. The company does not, however, expect to sell much iron at this price. It is quoting $14.50, furnace, for delivery during the first half of next year, but buyers are not yet showing much interest in next year's market. Sales in the Cleveland district are not numerous, but Cleveland agencies, having furnaces at other points, report very heavy business and a strong market. The Republic Iron & Steel Co. is quoting $13, Birmingham, for No. 2 foundry, for the first half of next year. We quote, delivered in Cleveland, for the remainder of the year, as follows:

No. 1 foundry	$14.25 to $14.75
No. 2 foundry	13.75 to 14.25
No. 2 southern	15.85 to 16.35
Bessemer	15.15 to 15.30
Lake Superior Charcoal	16.25 to 16.50
Jackson co. 8 per cent silvery	16.05

Coke.—Some foundries are placing orders for coke, but the market is not active. There is very little change in prices. We quote, as follows, at the ovens:

Connellsville furnace coke, $2.25 to $2.30 for prompt delivery, and $2.25 to $2.35 on contract; Connellsville foundry coke, $2.60 to $2.75 for prompt, and $2.50 to $2.75 on contract.

Finished Material.—The pressure for deliveries is extremely strong and structural shops are complaining of inability to get material promptly. Owing to the congested condition of the mills, jobbers are getting numerous orders for good tonnages at full prices. Specifications continue heavy and the outlook for continued activity is excellent. The warehouse to be erected by the George Worthington Co. will require 125 tons of reinforcing bars. Although the recent advances in sheet prices are being adhered to, some of the independent companies are taking very little new business at the present time. Liberal orders for bar iron have been placed recently and on some sizes mills are as far as two months behind on deliveries. Local plate mills are selling plates at 1.40c, Pittsburgh.

Old Material. — The activity displayed in the scrap market during the past two weeks has resulted in a general advance in quotations. Heavy melting stock is now held at $12.75 to $13.25, and the inquiry is still heavy. Dealers report sales of heavy melting stock to Sharon, Pa., and Alliance, O., buyers at $13.50, f. o. b. Cleveland, while a small railroad tonnage was taken at $14, Cleveland. The shortage of labor affects both dealers and buyers. One of the local rolling mills will shut down for several weeks. The B. & O. list closed today. We quote, f. o. b. Cleveland, as follows:

Gross Tons.

Old iron rails	$15.50 to 16.00
Old steel rails (under 6 ft.)	14.00 to 14.50
Old steel rails (over 6 ft.)	14.00 to 14.50
Relaying rails	19.50 to 20.00
Old car wheels	13.00 to 13.50
Old steel boiler plate	11.25 to 11.50
Malleable iron (railroad)	13.25 to 13.50
Steel axles	19.00 to 19.50
Axle turnings	10.50 to 11.00
Malleable iron (agricultural)	10.50 to 11.00
Heavy steel	12.75 to 13.25
Country mixed steel	11.25 to 11.75
Bundled sheet scrap	10.00 to 10.50

Net Tons.

No. 1 R. R. wrought	$12.50 to 13.00
No. 1 busheling	11.00 to 11.50
No. 1 machine cast	11.50 to 12.00
No. 1 dealers' wrought	11.00 to 11.50
Machine shop turnings	8.25 to 8.50
Pipes and flues	9.75 to 10.25
Wrought drillings	8.25 to 8.50
Stove plate	9.50 to 10.00
Cast borings	7.00 to 7.25
Wrought iron piling plate	14.50 to 15.00
Wrought iron arch bars	14.00 to 14.50

CHICAGO

Extremely Strong Position of Western Mills

Office of THE IRON TRADE REVIEW,
1328 Monadnock Blk., Aug. 6.

Producers in this territory are evincing comparatively little interest in the advance on bars, plates and shapes, because none of them is in a position to take advantage of it. Western mills are full for the remainder of the year and it is evident that a large tonnage of specifications will be carried over into 1913. Subsidiaries of the Steel Corporation have taken business in shapes that will run into March and in some lines will be unable to book any additional business for January, as the mill capacities for that month will be taxed by unfilled tonnage. The continued refusal of western mills to take business for next year places them in a very strong position, as they will be able to make contracts on the first of the year at prices that prevail at that time. Specifications on both plates and shapes continue undiminished and the fabricators are having increasing difficulty in obtaining deliveries. The interest of the railroads is centering on 1913 requirements and rail inquiries for large tonnages have appeared from western roads. Car buying is active. The requirements of the builders increase the congestion of the plate mills.

Pig Iron.—There is increased activity in northern iron and numerous small tonnages have been sold to melters who find their previous estimate insufficient for present requirements. While strong Chicago interests are firm at $15.50, a large part of the business is being transacted on a basis of $15 for No. 2 foundry. The present productive capacity of this district is well filled and iron is being shipped as fast as it is made. There is a good demand for both foundry iron and malleable Bessemer and considerable inquiry for good tonnages of the latter has appeared. It is reported that the leading interest is obtaining better prices at the Bayview furnace, No. 2 foundry being quoted at $15.50, delivered, in Milwaukee. With an average switching charge of 15c a ton, this gives a price of $15.35 at the furnace.

Sales and inquiries for southern iron are very satisfactory and the market remains firm on a basis of $12, Birmingham. Sales of small lots to local melters predominate and a considerable inquiry for small tonnages has appeared. A local melter has taken 500 tons of southern foundry for last half delivery, and a Waterloo, Ia., foundry has covered for 1,000 tons. A sale of 3,000 tons to a northern Illinois manufacturer is reported and a prominent radiator company is in the market for a fair tonnage.

The following prices represent the market for Chicago delivery for the remainder of the year, except northern foundry and malleable Bessemer, which are quoted f. o. b. local furnaces.

Lake Superior Charcoal	$16.25 to 16.75
Northern foundry No. 2	15.00 to 15.50
Southern foundry No. 2	16.35
Southern Silv'ries, 5 per cent sil.	17.35
Jackson co. silv'r's 8 per cent.	18.35 to 18.85
Malleable Bessemer	15.00 to 15.50
Alabama basic	16.35

Billets.—With finished lines practically sold up for some time in advance, there appears to be little possibility for a betterment in the condition of the billet market. Chicago producers are not in a position to increase their tonnage and the present trouble experienced by consumers may be expected to increase. Prices are unchanged from the previous week, premiums being offered freely. We quote, open-hearth forging billets, $31, re-rolling billets, $27.50.

Merchant Bars.—Specifications for iron bars have decreased somewhat over the high mark during July. Mills are booked for three months in advance at the least. In the majority of cases, but little new business can be taken, and the total tonnage of specifications will tax capacities for the rest of the year. Practically no business can be placed at 1.35c and considerable tonnage has been sold at 1.45c. Steel bars are uniformly quoted at an advance of $1 a ton, following the lead of independents who advanced prices during the previous week. Premiums continue to be offered, but on account of the crowded condition of the mills such business cannot be placed except in isolated instances. Practically no new business can be taken for the rest of the year. Any quotations in the present market must be regarded as nominal, as producers cannot benefit by an advance.

We quote, f. o. b. Chicago, as follows:

Bar iron, 1.40c to 1.45c, hard steel bars, rerolled, 1.30c to 1.35c; soft steel bars, bands and small shapes, 1.48c; hoops, 1.53c; smooth finished machinery steel, 1 inch and larger, 1.78c; shafting 64 per cent off list for carload lots, 59 per cent off for less than carloads.

On iron and steel from local stock we quote as follows:

Bar iron, 1.70c per pound base; soft steel bars, 1.70c to 1.75c per pound base; soft steel hoops, 2.00c, full extras.

Structural Material.—The advance of $1 a ton on shapes is now uniform in this territory, but producers are unable to reap any advantage, as they are not in a position to book new business. The leading interest has taken specifications that will run into March and it is becoming evident that but little new business can be taken for January delivery. Independent mills report a parallel condition, and it is certain that much business will be carried over into 1913. The demand upon the warehouses is becoming even heavier and in the majority of cases delivery cannot be made under two weeks. Owing to the amount of unfilled orders on hand, jobbers cannot promise delivery at all with any certainty, as they find themselves very short on many shapes and sizes. The total of the structural contracts for the week is small, amounting to but 4,870 tons. Of the total, Christopher & Simpson have taken 407 tons from the Mississippi River Power Co. for a sub-station at St. Louis, Mo., the Noelke-Richards Co. has taken 3,425 tons from the Monward Realty Co. for a bank and office building, at St. Louis, and the Pacific Iron Works has taken 102 tons, from the Standard Oil Co., for building purposes at Willbridge, Ore. A contract for 148 tons of structural material has been taken by the Reinforced Concrete Co., from International Falls, Minn., for a high school building at that place. Other contracts placed during the week include 131 tons by the American Steel & Wire Co., for structural work at Waukegan, Ill., 115 tons by the Chicago, Burlington & Quincy R. R. Co., for a freight house at St. Joseph, Mo., and 141 tons by the Darbyshire-Harvie I. & M. Co., for structural work at El Paso, Tex. The Reinforced Concrete Co. has also taken 391 tons, for the Masonic Temple, at El Paso.

We quote mill prices, f. o. b. Chicago, as follows:

Beams and channels, 15 inch and under, 1.53c. For extras, see Pittsburgh report.

Store prices are as follows:

All angles, 3 inches and larger, including 6 inches, $1.80 to $1.85 per 100 pounds; angles over 6 inches, $1.90 per 100 pounds, base; beams, 3 to 15 inches, inclusive, $1.80 per 100 pounds, base; channels, 3 inches and larger, $1.80 per 100 pounds, base.

Rails and Track Fastenings. — The railroads are evincing greater interest in 1913 requirements, and a number of inquiries have appeared for delivery at that time. The western mills continue to refuse the new business offered and specifications suffice to keep them full for the remainder of the year. Since no business is being considered beyond the last quarter, practically nothing can be placed in this territory. It is certain that a considerable tonnage will be carried over into 1913, and probably at prices more advantageous to the producers. Spikes and bolts are stronger and are quoted at an advance in many instances. The Northern Pacific has ordered 8,000 tons of rails from the Illinois Steel Co., and a number of inquiries in lots of from 1,000 to 5,000 tons for early delivery have appeared, none of which can be placed in the west.

We quote, light rails f. o. b. Chicago, and track fastenings f. o. b. Joliet, as follows:

Light rails, carloads, 25 to 45 pound, 1.20c to 1.25c; 16 to 20-pound, 1.25c to 1.30c; 12-pound, 1.30c to 1.35c; 8-pound, 1.35c to 1.40c.

Light section relayers, 45 pounds and under, subject to inspection, $21 to $23; standard section relaying rails, subject to inspection, $22 to $23.

Track fastenings, f. o. b. Joliet, angle bars, 1.50c; railroad spikes, 1.75c to 1.80c; smaller size spikes, 1.70c base; track bolts with square nuts, 2.10c to 2.15c, base.

Plates.—Heavy specifications by car builders continue to add to the congestion of the mills, and but little business can be placed for the remainder of the year. The total of specifications from all sources is further in excess of productive capacity, and it is certain that the unfilled plate tonnage carried in 1913 will be very large. All producers in this territory are quoting an advance of $1 a ton, but cannot benefit by the increase. Low priced tonnage is fairly well cleaned up and it is thought that in 60 days all contracts at less than 1.25c, Pittsburgh, will be filled. By refusing business for 1913, the mills in this territory will be in a position to take advantage of prices prevailing at the first of the year on both unfilled tonnage and new business. In some cases, however, business already on the books will preclude additional tonnage until February. As in other lines, the jobbers are bearing the burden of the situation and are unable to make deliveries under two weeks. Store prices are very strong and an early advance may be expected. The Duluth, South Shore & Atlantic is in the market for 1,000 freight cars. The St. Louis & San Francisco has asked for bids on 10 all-steel baggage cars, and the Chicago, Milwaukee & St. Paul has inquired for 500 gondola cars and 500 refrigerator cars.

We quote, f. o. b. Chicago, as follows:

Tank plates, ¼ inch thick. 6¾ to 100 inches wide, 1.53c. For extras, see Pittsburgh report.

Store prices are as follows:

Tank steel, ¼ inch and heavier, up to 72 inches wide, $1.80.

Sheets.—The mills in this territory have reached a congested condition closely bordering on the state of the plate mills and with comparatively few exceptions are out of the market for the rest of the year. No western producers are actively seeking business and are having difficulty in taking care of specifications, which show a marked increase. Jobbers' time for delivery has been advanced to two weeks in many cases and a shortage in some sizes is being experienced. Prices are very firm and higher quotations may be looked for.

We quote, f. o. b. Chicago, as follows from stock:

Blue annealed, No. 10, 2.10c; No. 12, 2.15c. Box annealed, No. 28, 2.50c. Galvanized No. 28, 3.60c.

For mill prices, see Pittsburgh report. Freight to Chicago, 18 cents.

Wire Products. — The volume of business continues on the increase and the effect of the fall trade is becoming more pronounced. While no further advance has materialized, the demand would seem to justify it, and its early arrival is predicted in some quarters. As independent producers are not actively seeking business, there is little inclination to shade prices in this district. Agricultural wire and fencing are in the lead and an increasing amount of business in nails is offered.

We quote, f. o. b. Chicago, as follows:

Wire nails, jobbers' carload lots, $1.83; retailers' carload lots, $1.88, retailers' less than carload lots, $1.93; painted barb wire, jobbers' carload lots, $1.88; retailers' carload lots, $1.93; retailers less than carload lots, $1.98, with 30c for galvanizing; plain wire, jobbers' carload lots, $1.63; retailers' carload lots, $1.68.

Merchant Pipe and Tubes.—The fall trade is beginning to affect the market strongly and western makers are unable to keep pace with the demand. Deliveries are several weeks behind and the recent advance is fully justified by a greater volume of business. The market is very firm and even at this early date there seem to be indications of an additional increase, particularly if the demand continues at the present rate.

We quote store prices on merchant pipe and tubes as follows:

Iron and Steel Pipe Basing Prices.

	Steel		Iron.	
	Black.	Galv.	Black.	Galv.
Butt.				
⅛ inch and ¼ inch.	69.2	48.2	62.2	41.2
⅜ inch	73.2	62.2	67.2	51.2
½ inch to 1½ inch.	76.2	67.2	70.2	58.2
Lap.				
2 inch	74.2	66.2	67.2	57.2
4½ inch to 6 inch..	75.2	66.2	58.2	59.2
Card Weight.				
7 inch to 12 inch...	72.2	61.2	66.2	55.2
Extra Strong Plain Ends.				
Butt.				
⅛, ¼, ⅜ inch.....	64.2	52.2	59.2	47.2
½ inch	69.2	57.2	64.2	52.2
2 inch to 3 inch....	74.2	62.2	....	....
Lap.				
2 inch	70.2	58.2	65.2	53.2
7 inch to 8 inch....	64.2	52.2	59.2	47.2
Double Extra Strong.				
Butt.				
½ inch	57.2	45.2	....	....
¾ inch to 1½ inch.	60.2	49.2	....	....
Lap.				
2 inch	58.2	46.2	....	....
4½ inch to 6 inch..	59.2	47.2	....	....
7 inch to 8 inch....	52.2	40.2	....	....

Tubes.

	Lap weld steel.	Charcoal iron.	Shelby seamless.
	Per cent.	Per cent.	Per cent.
1 inch	37	..	55½
1¼ to 2¼ inch.....	53	38	34
2¾ to 3¼ inch.....	63	48	44
3½ to 4½ inch.....	65½	48	44
5 to 6 inch.....	53	..	..

Cast Iron Pipe.—A satisfactory number of inquiries for small tonnages, with some larger lots, have appeared during the week and makers in this district are quoting higher prices on all sizes. Four-inch pipe has advanced to $28 and a like advance has been made on larger pipe. Pipe makers are affected by the hardening of the pig iron market and the increase places them in a position more consistent with the demand. Milwaukee has let a contract to the United States Cast Iron Pipe & Foundry Co. for 5,000 tons of water pipe and the city of Detroit is in the market for a like amount.

We quote, f. o. b. Chicago, as follows:

Four-inch water pipe, $28, 6 to 12 inches, $26.25, larger sizes, $25.50; gas pipe, $1 a ton higher.

Old Material.—While there is no amelioration in the labor situation and stocks on hand have not been decreased, the upward tendency of the scrap market has maintained and is

emphasized by an advance on several items. Dealers are evincing no inclination to sell short and are conserving stocks for a rise. It is thought, however, that with the increase in the railroads' lists that must come by reason of their purchases of new equipment, any advance can be but momentary and that speculative buying is responsible for the present condition. Railroad offerings for the week were very light, the only list of importance being one of about 910 tons issued by the St. Louis & San Francisco. The principal items are 140 tons of No. 1 railroad wrought and 100 tons of No. 2.

We quote, for delivery in consumers' yards, Chicago, as follows:

Gross Tons

Old car wheels	$13.25 to 13.75
Old iron rails	16.50 to 17.00
Rerolling rails (5 ft. and over)	13.25 to 13.75
Old steel rails (3 ft. and under)	12.50 to 13.00
Frogs, switches and guards	11.75 to 12.25
Heavy melting steel	11.50 to 12.00
Shoveling steel	11.50 to 12.00

Net Tons

No. 1 R. R. wrought	$12.00 to 12.50
No. 2 R. R. wrought	11.00 to 11.50
Arch bars and transoms	15.50 to 16.00
Knuckles, couplers and springs	11.75 to 12.25
Shafting	15.00 to 15.50
Iron car axles	19.50 to 20.00
Steel car axles	15.50 to 16.00
Locomotive tires	13.50 to 14.00
Dealers forge	9.75 to 10.25
Pipe and flues	9.00 to 9.25
No. 1 cast	11.75 to 12.25
No. 1 busheling	10.00 to 10.25
No. 2 busheling	7.25 to 7.75
No. 1 boiler cut	8.25 to 8.75
Boiler punchings	12.50 to 13.50
Cast and mixed borings	6.50 to 6.75
Machine shop turnings	7.25 to 7.50
Railroad malleable	11.75 to 12.25
Agricultural malleable	10.50 to 11.00
Angle bars, splices, etc., iron	14.00 to 14.50
Angle bars, steel	11.25 to 11.75
Stove plate and light cast scrap	10.00 to 10.50

PHILADELPHIA

Prices Advancing---Pig Iron Active

Office of THE IRON TRADE REVIEW, Philadelphia, Aug. 6.

Strong fundamental conditions and the promise of a continued upward swing to prices are being emphasized by the very favorable state of eastern iron and steel markets. Advances in price schedules in finished products put in effect early last week have been supplemented by further increases this week in the schedules of eastern mills. Universal plates are now quoted $1 above the market by several makers, bar iron is higher and some of the minor lines have been advanced. Where prompt deliveries were available, as much as $5 premium in plates was paid to eastern mills this week. Scarcity of labor furnishes the one divergent factor in an otherwise favorable outlook and production is being so cut as a result that the shipments of some eastern mills in July fell below June. This lack of men is also interfering with the handling of incoming material, particularly scrap. Pig iron has been more active, the principal sales consisting of about 25,000 tons of basic to eastern steel makers at higher prices. Buying of old material is moderate, but the undertone is strong.

Pig Iron.—Considerably more activity manifested itself in the iron market in this district the past week and a round tonnage in the aggregate, well distributed as to grades, was entered. As a result, the sales sheet of some sellers was the heaviest of any week in more than nine months. Steel-making iron has furnished the heaviest sales, totaling about 25,000 tons. An eastern Pennsylvania plate maker closed for 10,000 to 15,000 tons of basic to round out its requirements for this year, at a price of $15.75, delivered. A central Pennsylvania consumer took 9,000 tons for shipment over the next four months at $15.75, delivered. Both tonnages will be supplied by eastern Pennsylvania makers. The price of $15.75, delivered in eastern Pennsylvania, represents 5 cents above the last previous sale which established the highest mark for basic in the east for two years. Another eastern buyer which was reported as fully covered by recent purchases of basic, was showing interest the past week on 6,000 tons additional. In low phosphorus iron, one sale of 1,000 tons to this district at $20, Philadelphia, is reported. Some quotations on this grade at a basis equivalent to $21, Philadelphia, were made in the week. Sales of about 4,000 tons of malleable for shipment after the first of the year have been made to this territory at $16.70, delivered, or from 50 to 75 cents above the last previous sales for this year's shipment. Foundry iron prices continue to increase in strength. Quotations below $15, furnace, for No. 2X in the Lehigh valley disappeared the past week, bringing the minimum of the market now to $15.75, Philadelphia. Virginia iron for any delivery this year is well established at $13.50, furnace, for No. 2X and some sales have been made at $14, furnace. A Virginia pipe maker is in the market for 6,000 tons of forge and No. 3 for last quarter and is being quoted around $13.25, furnace, which is 25 cents higher than the price at which similar grades were last sold to the same district. One Delaware river pipe shop has taken about 2,000 tons additional of Virginia off grades, including one lot of 1,200 tons of high manganese iron at about $15.15, delivered. Some inquiry for standard mill forge is now pending. One of the Hellertown furnaces of the Thomas Iron Co. will probably soon blow in.

We quote for prompt and last quarter shipment at consumers' plants in Philadelphia and vicinity, as follows:

Eastern Pa. No. 2X foundry	$15.75 to 16.00
Eastern Pa. No. 2 plain	15.00 to 15.75
Standard gray forge	15.00 to 15.50
Basic Eastern and Central Pa.	15.70 to 16.00
Virginia No. 2X	16.30 to 16.50
Southern No. 2	15.50 to 15.75
Standard low phosphorus	20.00 to 20.50
Malleable	16.00 to 16.50

Finished Material.—An advancing market in all finished products continues to be emphasized by developments in the eastern district. Makers in this territory are putting into effect further raises in their schedules beyond the advances posted only last week. Universal plates are up $1 a ton or to 1.40c, Pittsburgh, with two eastern plate mills and it is understood large Pittsburgh makers are quoting likewise. One of these eastern makers is also asking 1.40c, Pittsburgh, for sheared plates, although the other will still do 1.35c. Large premiums are still going to eastern plate mills for prompt deliveries and in some cases in the week $5 a ton above the market was paid

for such service. Structural shapes are being quoted at 1.35c, Pittsburgh, by eastern Pennsylvania mills, but one of these companies offers that price for acceptance only up to Aug. 15. From stock, 1.60c, mill, is asked. Bar iron has been advanced another $1 by some eastern makers who are now quoting as a minimum 1.35c, Philadelphia, or 1.27½c, mill. Rivets have been advanced $1 a ton to 1.65c, Pittsburgh, for structural, and 1.75c, Pittsburgh, for boiler rivets. Spikes are again up $1 to 1.65c, Pittsburgh, for railroad, and 1.70c for small spikes. Philadelphia warehouse prices have gone up $2 a ton, to 1.85c for plates, shapes and steel bars.

New business has continued liberal. The advancing prices have in no way deterred pending business, and in numerous cases the price factor is made subordinate to that of deliveries, customers demanding the earliest possible shipment and being willing to pay handsomely for accommodation in this respect. This is shown by the heavy premiums being paid for prompt material.

Labor shortages, while improved in some quarters, are still severe, and increase of operations is being held back at some plants directly because of this condition. The lack of men is reflected in the fact that some eastern mills were not able to ship as heavy a tonnage in July, notwithstanding its being one day longer, as they moved out in June. This shrinkage came in the face of a continued booking of orders by the mills at a rate in excess of capacity.

Pittsburgh mills will furnish the bulk of the approximately 20,000 tons of plain material required for the three additional merchant vessels placed by W. R. Grace & Co. with the Wm. Cramp & Son Ship & Engine Building Co. The Phoenix Bridge Works has finally closed for 1,500 tons for a bridge for the New York Central railroad at Oswego, N. Y., and eastern mills will furnish the plates and shapes required. The American Bridge Co. has 250 tons for a Y. M. C. A. building at Reading, Pa. Bids have gone in, but no action has been taken, on 750 tons for a bank building at Scranton, and on 400 to 500 tons for a theater at Germantown.

We quote, delivered to consumers' plants in Philadelphia and vicinity, as follows:

Plain structural shapes, 1.50c; tank plates, 1.50c to 1.55c; steel bars, 1.45c; common bar iron, 1.32½c to 1.35c; cut nails, 1.65c to 1.70c; blue annealed sheets, No. 10 gage 1.60c; 4 x 4-inch open-hearth rolling billets, $24.40; forging billets, $29.40 to $30.40. Extras shown under Pittsburgh report. Philadelphia warehouse prices 1.85c for plates, shapes and bars.

Old Material.—Because of a scarcity of labor to unload shipments, heavy accumulations of scrap on track have come about at several eastern steel works, and the declaration of embargoes will probably be forced. Some of these mills are in the market for further lots and the laying of embargoes would prevent the rather anomalous situation of shipments being checked against them while they are seeking additional supplies. Buyers show a disposition to close liberally at the minimum prices of the present market, but the dealers are holding firmly for maximum values on any sizable lots and are not very anxious to sell even then, as they expect higher prices. Present activity is accordingly moderate. This is especially true in heavy steel. Sales of 750 tons of No. 1 railroad wrought at $15.75, Philadelphia, and of several hundred tons of No. 1 forge at $12.60, delivered eastern Pennsylvania, are noted. The railroads are closing this week on their monthly lists, which are heavy. We quote, gross tons, delivered to consumers' plants in eastern Pennsylvania and western New Jersey, as follows:

Old iron rails	$16.50 to 17.00
Old steel rails (rerolling)	14.75 to 15.25
No. 1 heavy melting steel	13.75 to 14.00
Old car wheels	13.75 to 14.25
Old iron axles	24.00 to 25.00
Old steel axles	17.50 to 18.00
No. 1 railroad wrought	15.50 to 16.00
Wrought pipe	12.50 to 13.00
Cast borings	9.75 to 10.25
Machine shop turnings	10.75 to 11.25
Heavy cast	13.50 to 14.00
Malleable	11.75 to 12.25
Stove plate	10.75 to 11.25
No. 1 forge	12.25 to 12.75

Freight rates per ton on scrap from Philadelphia to principal eastern consuming points are: $0.60 to Ivy Rock, Pa.; $0.65 to Phoenixville, Pa.; $0.80 to Coatesville, Pa.; $0.85 to Bethlehem, Pa., Reading, Pa., and Roebling, N. J.; $1.10 to Pottsville, Pa., Lebanon, Pa., and Columbia, Pa.; $1.20 to Harrisburg and Steelton, Pa.; $1.40 to Milton, Pa.

ST. LOUIS

Fair Demand for Pig in Small Tonnages

Office of THE IRON TRADE REVIEW,
St. Louis, Aug. 6.

Pig Iron.—An inquiry is in the market in the St. Louis territory for 5,000 to 6,000 tons of southern iron, malleable, car wheel and foundry, and there is a fair buying movement on in 300 to 500-ton lots. Sales last week totaled 6,000 to 8,000 tons, made up of small lots. Prices seem firm at $12, Birmingham basis, for No. 2, although there is some talk of $11.75 iron. One lot of 500 tons of southern No. 2, was sold in Quincy, Ill., last week, at $12, Birmingham. Northern iron seems firm at $13.25 to $13.50, Ironton, and is in some demand. Prices, delivered, to which the Birmingham freight of $3.75, has been added, follow, the higher price more nearly representing the actual market in the St. Louis territory:

Southern No. 1	$16.00 to 16.25
Southern No. 2	15.50 to 15.75
Southern No. 3	15.00 to 15.25
Southern No. 4	14.75 to 15.00

Coke.—An inquiry for 2,400 to 2,500 tons of foundry coke is out, and sales of 18 to 19 cars of foundry grades are reported today.

We quote 72-hour Connellsville foundry grades, $2.50 to $2.75 for immediate shipment or delivery through the year; 48-hour Connellsville furnace, $2.25 to $2.40; best 72-hour Virginia foundry, $2.50 to $2.75; 48-hour Virginia furnace, $2.25 to $2.40. The freight to East St. Louis and St. Louis is $2.80, and $2.70 from the Virginia fields when shipment is destined beyond St. Louis.

Finished Material. — The contract for steel, about 3,200 tons, for the Monward building, from 18 to 21 stories, which will be erected at Broadway and Olive street, has been let to Noelke & Richards, Indianapolis.

Steel bars are in good demand at 1.30c Pittsburgh, and plates and structurals at 1.35c Pittsburgh.

Old Material.—Prices which dealers are willing to pay for scrap at St. Louis, follow:

Gross Tons.

Old car wheels	$13.50 to 14.25
Old iron rails	15.25 to 15.50
Re-rolling rails (5 ft. and over)	13.25 to 13.75
Old steel rails (3 ft. and under)	12.25 to 13.25
Light section relayers (45 lb. and under) subject to inspec.	21.50 to 22.50
Relaying rails; subject to inspec.	22.50 to 23.25
Frogs, switches and guards	9.50 to 10.25
Heavy melting steel	10.50 to 11.25
Shoveling steel	9.75 to 10.25

Net Tons.

No. 1 railroad wrought	$10.50 to 11.00
No. 2 railroad wrought	9.50 to 10.00
Arch bars and transoms	13.25 to 13.50
Knuckles, couplers and springs	9.50 to 10.00
Shafting	13.00 to 13.50
Iron car axles	17.50 to 18.00
Steel car axles	15.00 to 15.50
Locomotive tires	10.50 to 11.00
No. 1 country wrought	8.75 to 9.25
Pipe and flues	8.00 to 8.50
Tank iron and cut boilers	7.00 to 7.50
No. 1 cut busheling	8.75 to 9.25
No. 2 cut busheling	5.75 to 6.25
Cast and mixed borings	5.75 to 6.00
Machine shop turnings	6.50 to 6.75
Railroad malleable	10.00 to 10.50
Agricultural, malleable	9.00 to 9.50
Stove plates	9.00 to 9.50
Angle splice bars (iron)	10.75 to 11.50
Angle splice bars (steel)	9.00 to 9.50

CINCINNATI

Pig Iron Sales Few---Low Grades Scarce

Office of THE IRON TRADE REVIEW,
503 Mercantile Library Bldg., Aug. 6.

Pig Iron.—Although transactions in the market are few and generally for small tonnages, the situation remains strong in both the southern Ohio and southern districts, with a tendency towards a slight rise in prices, especially on spot shipment iron. Certain kinds are becoming more scarce each day, as furnaces are gradually withdrawing from the market.

Prices on southern iron are given at $11.50, Birmingham, for spot shipment, and $12 for the remainder of the year. There has been quite a little business placed at the latter figure, and in one instance a large Birmingham producer sold a small tonnage of No. 1 soft at $12.75, furnace, which is on the basis of $12.25 for No. 2. It must be taken into consideration, however, that this grade is very scarce, and generally brings a good premium. A local interest recently sold 1,200 tons of southern iron in Chicago territory on a basis of $11.50, Birmingham, but since then has advanced its price to $12. It can safely be stated, though, that iron can still be had in the south, but not all makes, at $11.50, for spot shipment, and in some cases through to the end of the year. Virginia iron is quoted at from $13.25 to $13.50, furnace, for No. 2X.

The southern Ohio situation has grown a little stronger during the past week, owing to the fact that a large Ironton maker has withdrawn from the market on all but one make, which it is holding at $14, furnace. No. 2 foundry iron can still be had in the Hanging Rock district, at $13.-50, Ironton, and quotations from this territory are given at this figure, and $14, the latter chiefly for delivery during the last part of the year.

Recent inquiries include 200 tons of malleable iron from a northern Ohio user for delivery from July to December of this year, but certain southern Ohio furnaces have refused to submit their prices, owing to the fact that they are entirely out of the market. A melter from the same territory wants 200 tons of No. 1 soft, for the same delivery, and a West Virginia user is out for 500 tons of southern No. 2 iron, also for the fourth quarter. There is an inquiry for 500 tons of low phosphorus iron from central Ohio, and one for the same grade from Michigan territory, both for shipment during the rest of the year, and also one for 500 tons of southern foundry iron from a Kentucky melter, for the same delivery. Inquiries for the first half of next year include from 500 to 1,000 tons of analysis iron for nearby western shipment, and 800 tons of southern No. 2, for a local user. With freight rates $1.20, from Ironton, and $3.25 from Birmingham, we quote Cincinnati prices as follows:

Southern foundry No. 2	$14.75 to 15.25
Southern foundry No. 3	14.25 to 14.50
Southern foundry No. 4	14.00 to 14.25
Southern gray forge	13.75 to 14.00
Mottled	13.00 to 13.75
Scuthern No. 1 soft	15.25 to 15.50
Southern No. 2 soft	14.75 to 15.25
Standard southern car wheel	25.50 to 25.75
Northern No. 2 foundry	14.70 to 15.20
Northern No. 3 foundry	14.20 to 14.45
Northern No. 4 foundry	13.95 to 14.20
Jackson co. 8 per cent silicon	17.20 to 17.45

Coke.—Very little activity is being shown in the coke market, but it is expected that some fairly large contracts will be closed before the end of the week, as certain furnaces are beginning to show more of an inclination to buy. Connellsville furnace coke is quoted at from $2.25 to $2.35, for prompt shipment, and from $2.35 to $2.50, ovens, for later delivery. Wise county furnace coke is strong at from $2.25 to $2.50, and one interest is holding firm at $2.75. We quote below from the leading coke producing districts as follows:

	Prompt shipment.	Contract.
Connellsville district:		
Foundry coke	$2.50 to 2.75	$2.50 to 2.75
Furnace coke	2.25 to 2.35	2.35 to 2.50
Wise country district:		
Foundry coke	$2.50 to 2.75	$2.50 to 2.75
Furnace coke	2.25 to 2.50	*Sliding [scale basis.
Pocahontas district:		
Foundry coke	$2.25 to 2.50	$2.50 to 2.75
Furnace coke	2.00 to 2.25	2.25 to 2.50
New river:		
Foundry coke	$2.50 to 3.00	$3.00 to 3.25
Furnace coke	2.15 to 2.25	2.35 to 2.50

*Sliding scale basis means $1.60 for coke based on $9, Birmingham, for pig iron, with an advance of 16 2-3 per cent of the amount over $9 which pig iron is quoted. This is the usual basis. Other forms of sliding contracts are also made.

Finished Material. — The principal outstanding structural contract to be let soon is the new 10-story building of the Cincinnati Bell Telephone Co., which will require approximately 1,500 tons. The local sheet market is strong and prices are firm, as follows, Pittsburgh basis: Galvanized sheets, No. 28 gage, 3.15c, and black sheets, No. 28, 2.05c. Business is good with the local mill, which is behind on deliveries, and reports specifications coming in faster than they can be handled. For other mill prices, see Pittsburgh report.

Warehouse business is good, and some of the local houses are finding it difficult to supply the demand owing to the fact that stocks have recently been greatly diminished, and cannot be replenished. Prices on concrete bars have been advanced by some of the dealers and this has also been the case with some on blue annealed sheets. We quote below warehouse prices, f. o. b., Cincinnati, as follows:

Steel bars, 1.75c base; iron bars, 1.70c base; structurals, 1.95c base; plates, ¼ inch and over, 1.85c base; sheets, blue annealed No. 10, 2.05c base; rivets, cone head, 2.30c base; cold rolled shafting, 60 per cent discount; boiler tubes as follows: 1¾ to 2¼ inch, 60 per cent discount; 2½ inch, 62 per cent discount; 2¾ to 3¼ inch, 65 per cent discount; 3½ to 4½ inch, 67 per cent discount; and 5 to 6 inch, 60 per cent discount; cold rolled shafting, 60 per cent discount; soft steel cold twisted concrete bars, cut to length as follows: ¾ inch square and larger, 1.90c; ⅝ inch square and larger, 2.00c; ½ inch square and larger, 2.10c; 5-16 to ⅜ inch square and larger, 2.30c; ¼ inch square and larger, 2.45c.

Old Material.—There is very little activity in the scrap iron market, and not much business is being transacted by the local dealers. Prices have not changed, as there have been no developments of sufficient importance to warrant either an advance or decline. A recent sale of mixed cast was made recently to a local dealer at $8.50 per net ton, and a small tonnage of No. 1 machine cast was disposed of by the same dealer at $10.50. Most of the business continues to be done outside of Cincinnati. We quote below prices dealers will pay and also dealers' selling prices in Cincinnati and vicinity as follows:

Gross Tons

Old iron rails	$12.25 to 13.00
Old steel rerolling	10.75 to 11.25
Old iron axles	17.25 to 17.75
Heavy melting scrap	9.75 to 10.25
Relaying rails	19.75 to 20.75
Bundled sheet scrap	7.50 to 8.00

Net Tons.

Old No. 1 R. R. wrought	$10.00 to 10.50
No. 1 machinery cast	10.00 to 10.50
No. 1 busheling	7.75 to 8.50
Stove plate	7.50 to 8.00
Machine shop turnings	6.25 to 6.75
Cast borings	6.00 to 6.50
Heavy turnings	6.75 to 7.25
Mixed cast	8.50 to 9.00
Malleable	7.00 to 7.50

NEW YORK

Another Buying Movement in Pig Iron Expected

Office of THE IRON TRADE REVIEW,
115 West Street Bldg., Aug. 6.

Iron Ore.—Leading miners of iron ore in the eastern district who are sold up heavily on their output are taking a stronger view of the situation and new business of size would probably bring out advances of about 25 cents a ton. The better industrial conditions prevailing are reviving much interest in eastern ore deposits and prospecting and preliminary development work are active. New buying of foreign ores continues light, owing to the higher prices being asked.

Pig Iron. — Signs of a broadening market and of the approach of another buying movement are multiplying. New inquiries are coming out more freely and buyers are now showing more interest in deliveries after the first of the year. The furnaces, however, do not seem inclined to anticipate the future any more than they can avoid and some of them are reluctant even to put a figure on unsold portions of their fourth quarter tonnage. Pending negotiations, either written or informal, in this market now reach about 25,000 tons. Some large consumers are quietly in the market and are manifesting a disposition not to advertise the fact in order to avoid exciting the situation. The iron under negotiation embraces basic, foundry and charcoal grades. A New Jersey stove maker is inquiring for 2,500 to 5,000 tons of No. 2X, for first quarter and a lot of 6,000 tons of basic for the same delivery for an eastern buyer is still open. The New York Central railroad is still in the market for 2,000 tons of No. 1 and No. 2X, for shipment this year to Frankfort, N. Y. A Connecticut consumer is out for 500 to 1,000 tons of No. 2 X for this year or first half. In addition, there is some quiet negotiation for a large consumer. Prices continue strong and are tending toward higher levels. The $15, furnace, minimum, or $15.70, Jersey City, for No. 2X in eastern Pennsylvania, is now generally established by a withdrawal this week of any quotations below this value. Some business continues to be booked at 50 cents higher than this price. One leading Buffalo interest this week advanced its schedule to $14.50, furnace, for No. 2X. Virginia iron is strengthening and it is doubtful whether much, if any, tonnage for the rest of the year could be obtained below $13.50, furnace, for No. 2X and in some small cases, $14, furnace, has been paid. There has been some small selling of Scotch iron of No. 2 analysis to eastern buyers for regular mixtures at $23, seaboard. Some small sales of Swedish iron are also reported. The Lackawanna Iron & Steel Co. is blowing in its fourth furnace in the Lebanon district, which puts this plant fully in operation. One of the Hellertown furnaces of the Thomas Iron Co. is also about to resume. The No. 2 Crane furnace at Catasauqua, will blow in about Aug. 15. We quote for prompt and last quarter shipment at New York tidewater, as follows:

Northern foundry No. 1	$16.00 to 16.25
No. 2X foundry	15.70 to 16.00
No. 2 plain	15.50 to 15.70
No. 2 Virginia	16.30 to 16.50
No. 2 southern foundry	15.75 to 16.00
Malleable	15.75 to 16.00
Gray forge	15.25 to 15.50

Ferro-Alloys.—Some small lot buying of ferro-manganese for forward shipment has been done at $51, seaboard, but buyers do not seem willing as yet to pay the advance. Requirements generally, however, are well under cover at lower prices. Pending inquiry is about 1,000 tons, including one lot of 600 tons for this year for a St. Louis buyer. Carload inquiries for 50 per cent ferro-silicon are coming out. On this alloy, $70, Pittsburgh, represents the price for sizable business, while on small lots $72.50, Pittsburgh, is being done. We quote standard English 80 per cent ferro-manganese, for prompt and forward shipment at $51, seaboard, and 50 per cent ferro at from $70 to $72.50, Pittsburgh.

Cast Iron Pipe. — The market shows a liberal amount of business in small sized pipe, for which private buyers continue to close freely. Larger pipe is still a little sluggish and public lettings are light. The latter condition is not unusual for the month of August. All the eastern pipe shops are well filled with business and are operating favorably. We quote six-inch pipe at from $22 to $23, f. o. b. New York, in carload lots.

Finished Materials.—New business opportunities are still being put before buyers quite freely, but in most of these cases quick shipment is required, and many makers are practically barred from these offerings, because of their filled up condition. This very general demand for early deliveries which characterizes the market is bringing with it the tendering of some very attractive prices, amounting to premiums over the market. The mills which are able to take such business, however, are in the minority. Specifications against old contracts continue very active. The active volume of new business still in the market will be reflected in the unfilled tonnage statement of the Steel Corporation for July, to be issued at the close of this week. This statement will show an increase of from 100,000 to 150,000 tons over June, and will bring the unfilled orders of the leading interest up to or in excess of the high point, since the 1907 panic, which was at the close of the quarter ended Dec. 31, 1909. At that time, the book tonnage was 5,927,031 tons.

There is much strength in the price situation and further advances are indicated. Some eastern shape makers are quoting 1.35c for acceptance only up to the middle of August, and in plates some of the eastern mills already have in effect advances over the 1.35c price. Eastern bar iron makers are following the steel bar market and have put up their prices $1 a ton, making the New York range 1.35c to 1.40c. Cut nail prices in the east have gone up $2 a ton to 1.65c base, Pittsburgh, on carloads and 1.70c, Pittsburgh, on less than carloads. Indications are pointing to further price advances in both tin plate and wire products during the month of August. Wire makers feel that their product is still out of line with the advanced level of the general market.

The large inquiry for material for elevated and subway extensions put out by the Brooklyn Rapid Transit Co., as reported in last week's issue,

calls for the receipt of bids on Aug. 15. Deliveries on the structural tonnage, aggregating 91,000 tons, will be spread over a term of four years and the deliveries will call for 12,000 tons in one year from the closing of the contract, 33,000 tons in two years, 34,000 tons in three years and 12,000 tons in four years. In addition, an option is asked on 60,000 tons of fabricated material additional to be specified for within a year. This large inquiry is evidence of the heavy requirements that will be put out in the metropolis for projected enlargement of rapid transit facilities within the next two years. The Interborough Rapid Transit Co. is preparing plans for practically an equal tonnage as the Brooklyn system and this is expected to appear shortly. In all, probably 300,000 to 400,000 tons of steel will be required to complete extensions of the elevated and subway systems now in view.

Structural awards in the New York district are not very liberal. The Passaic Steel Co. has 1,000 tons for the Hellman loft on West Twenty-sixth street; Hinkle Iron Works, 800 tons for the Levy apartment, Ninety-eighth street and West End avenue; the McClintic-Marshall Construction Co., 750 tons for reinforcement of the Williamsburg Bridge, and A. E. Norton Co., 450 tons for Fernald Hall, Columbia University. Bids have been asked on 2,000 tons for terminals for the Clyde Steamship line at Charleston, S. C., and on 500 tons for a pier shed for the Lehigh Valley at Jersey City. The Geo. A. Fuller Co. has the general contract for the Ponce de Leon hotel, Atlanta, Ga., 1,000 tons. The warehouse for the H. J. Heinze Co. in the Bronx is being revised. Plans are about to be issued for a twenty-story building for the Fifty Broad Street Co., to be built at 46-50 Broad street, this city. Railroad work is of small amount. The New Haven is inquiring for a moderate amount of bridge work and for buildings at its Readville, Mass., shop. The Southern railroad is also inquiring for some small purchases.

Fabricating prices are holding very firmly at higher levels and there is not a great amount of cutting at present. For loft construction in the metropolis, prices range from $55 to $57, erected at present and for apartments around $64 to $65, erected. We quote, delivered at New York tidewater, as follows:

Plain structural shapes, 1.51c; tank plates, 1.51c to 1.56c; steel bars, 1.46c; common iron bars, 1.30c to 1.35c; steel bars from store, New York delivery, 1.93c; plates and shapes from store, 2.05c; extras as shown under Pittsburgh report.

Rails and Track Material.—In addition to the early inquiry for rails for next year's delivery, previously commented upon, there is quite an active demand from the railroads for tonnages to supplement the current year contracts. Some of the mills are so filled up that the railroads are not able to get the deliveries on such inquiries that they desire. Much of the inquiry now pending in the market for 1913 contracts is coming from western systems. One road is seeking a reservation on 100,000 tons and another on 75,000 tons. The Kansas City, Mexico & Orient has placed an order with the Pennsylvania Steel Co. for 13,500 tons for this year's delivery. There is a brisker inquiry for export rails. The Cuban Central railroad has placed 5,000 tons with the United States Steel Products Co. Among the other inquiring are 1,000 tons of girder rails for the Rio Janeiro and smaller lots of standard rails for Porto Rico, Mexico and other western hemisphere countries. The complete inquiry of the Brooklyn Rapid Transit Co. for rails for extensions, now in the market, calls for 10,700 tons of running rails, 10,200 tons of contact rails and an option of 15,000 tons additional of the two classes is asked.

Old Material. — There is a good movement to scrap materials in practically all grades except cast, which is still dragging, owing to the heavy supply on the market. Little buying of tonnage for future delivery is now being done, as there is no great anxiety on the part of sellers to commit themselves forward even at maximum prices. Consumers are paying advances sparingly, but the trend of the market is upward. Some dealers are asking $14.50, delivered, eastern Pennsylvania on large lots of heavy steel. No. 1 railroad wrought has shown up better and sales at $16, delivered, eastern Pennsylvania, have been made. We quote, gross tons, prices New York dealers will pay at tidewater, as follows:

Old car wheels	$11.75 to 12.00
Old iron axles	20.00 to 21.00
Steel axles	15.25 to 15.75
Old steel shafting	14.50 to 15.00
No. 1 heavy melting steel	11.50 to 11.75
No. 1 R. R. wrought	13.50 to 14.00
Wrought pipe	10.00 to 10.25
Cast borings	7.25 to 7.50
Machine shop turnings	8.25 to 8.50
Heavy cast	10.75 to 11.00
R. R. malleable	10.00 to 10.50
Stove plate	8.25 to 8.75
Grate bars	7.50 to 8.00

Freight rates on scrap per ton to Steelton, Pa., Columbia, Pa., Pottsville, Pa., and Harrisburg, Pa., are $1.50 from Jersey City and $2.30 from New York; to Coatesville, Pa., Ivy Rock, Pa., Phoenixville, Pa., and Reading, Pa., $1.50 from Jersey City and $1.80 from New York; to Bethlehem, Pa., $1.10 from Jersey City and $1.60 from New York; to Roebling, N. J., $1.00 from Jersey City and $1.50 from New York; to Milton, Pa., $1.60 from Jersey City, and $2.00 from New York; to Jersey City, $1.00 from New York; to Newark $1.10 from New York.

BIRMINGHAM

No Sales Made at Reported Concessions

Office of THE IRON TRADE REVIEW,
Birmingham, Ala., Aug. 6.

Pig Iron.—Despite rumors to the effect that a certain local brand of foundry iron, for prompt delivery, could be had at a concession from the $12, Birmingham, basis, no sales were reported at such figures in the past week. An aggregate of 7,500 to 10,000 tons of Nos. 2 and 3 foundry, for comparatively early delivery, was reported sold at a $12, Birmingham, basis, and 1,300 tons of analysis iron brought a higher price. This last consisted of a lot of 500 tons of high manganese, and 800 tons of 2 per cent to 2.5 per cent silicon, all of which is for prompt shipment. A small lot of silvery iron sold in the week at $13.75 per ton at Birmingham. The feature of the week was the re-entering of the market by a leading producer with a limited tonnage for early shipment. It is understood that the sales effected within that time took care of the tonnage offered, and that the producer referred to is again practically out of the market. There has been a decided improvement in the inquiry, smaller melters submitting specifications in larger volume, and considerably more interest is manifested by the larger concerns.

It has just been announced that the operation of the Alabama City, Ala., furnace of the Southern Iron & Steel Co., which produces basic, will not be affected by the receivership for that concern.

The market for all grades is quoted as follows, per gross ton, f. o. b. cars at Birmingham furnaces, viz.:

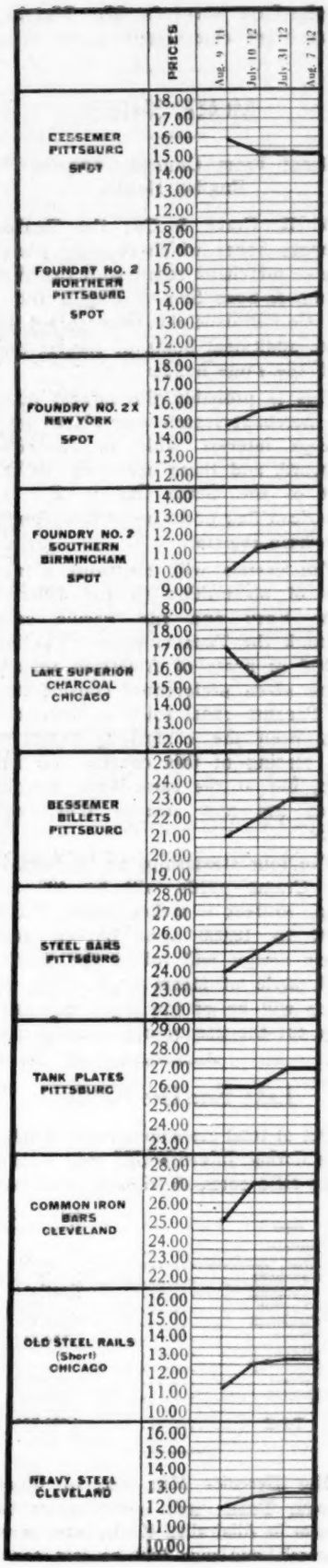
For delivery during the remainder of the year:

No. 1 foundry	$12.50
No. 2 foundry	$11.50 to 12.00
No. 3 foundry	11.00 to 11.50
No. 4 foundry	10.50 to 11.00
Gray forge	10.25 to 10.75
Mottled	10.00 to 10.25
Standard basic	10.75 to 11.25
Off basic	10.50 to 10.75
Standard charcoal	22.50 to 23.00

With the exception of charcoal iron, an advance of 25c to 50c per ton would be asked over the above figures for deliveries in the last quarter.

Old Material.—Cast scrap and old car wheels were given principal consideration in this market the past week, a round lot of wheels having been sold at $12 per ton at Birmingham. All

PRICE CHART



steel grades are very quiet, with little interest manifested in wrought and country scrap. Dealers continue the accumulation of stocks of all grades, and are not disposed to force a market. We quote prices being asked for holdings, about as follows, per gross ton, f. o. b. cars here, viz:

Old iron axles (light)	$15.50 to 16.00
Old steel axles (light)	12.00 to 12.50
Old iron rails	12.00 to 12.50
No. 1 R. R. wrought	12.00 to 12.50
No. 2 R. R. wrought	10.50 to 11.50
No. 1 country	8.50 to 9.00
No. 2 country	6.50 to 7.00
No. 1 machinery	9.00 to 9.50
No. 1 steel	9.50 to 10.00
Tram car wheels	8.50 to 9.00
Standard car wheels	10.50 to 11.00
Light cast and stove plate	7.00 to 7.50

BUFFALO

Pig Iron Active and Prices Advancing

Office of THE IRON TRADE REVIEW,
Buffalo, Aug. 6.

Pig Iron.—The pig iron market seems to be established on a sounder basis than at any time in the last five years, and the indications are that even better times are ahead. The inquiry during the past week has been very heavy and at the present time there are about 50,000 tons and upwards under negotiation in this district. Furthermore, sales are running heavier in volume than is apparent on the surface. Within the week, a total of 20,000 tons was placed here. Prices are absolutely on the basis quoted below and some of the interests are just about to serve notice of a further advance in their schedule. Basis has already stiffened.

The call from the foundries for iron is very heavy and the blast furnaces are being pressed on all sides for shipments. Were it not for the fact that a shortage of labor exists, foundries would be melting at an even greater rate. The labor problem appears to be the only dark cloud on the horizon.

The Rogers-Brown Iron Co. fired its new furnace No. 4 on the first of August. No. 2 is out of blast for relining.

We quote the following schedule of prices, f. o. b. furnaces:

No. 1X foundry	$14.25 to 14.75
No. 2X foundry	14.00 to 14.50
No. 2 plain	14.00 to 14.25
No. 3 foundry	14.00
Gray forge	13.75 to 14.00
Malleable	14.25 to 14.75
Basic	14.50 to 15.25
Charcoal	15.75 to 17.50

Old Material.—The prices for the week hold about as previously quoted. While there is an absence of general activity the disposition of the dealers is to hold rather firmly to their schedules, declining contracts requiring cutting. There seems to be a demand for material, and some of the larger yards say they could dispose of their entire stocks, if the consumers' figures were accepted. The users are holding off for a decline, while the dealers are equally positive that a change in the market situation will be upward rather than downward. We quote the following range, per gross ton, f. o. b. Buffalo:

Heavy melting steel	$12.75 to 13.25
No. 1 railroad wrought scrap	13.50 to 14.00
No. 1 R. R. and mch. cast scr'p	13.00 to 13.75
Old steel axles	15.00 to 16.00
Iron axles	21.00 to 22.00
Car wheels	13.00 to 13.75
Railroad malleable, scrap	11.50 to 12.25
Wr'ght iron and soft steel turn.	8.25 to 8.75
Cast iron borings	7.50 to 8.00
Low phosphorus steel scrap	15.75 to 16.25
Old iron rails	15.00 to 15.50
Tank iron	10.00 to 10.25
Boiler plate, sheared	13.75 to 14.25
Pipe and tank	9.50 to 10.00
Stove plate	11.00 to 11.50
Sheet iron	7.00 to 7.50
Locomotive grate bars	11.00 to 11.25

WILL BUILD TIN MILL

Near Wheeling—Company Organized With $750,000 Capital.

Pittsburgh, Aug. 6. — Capitalists controlling the majority of the independent iron and steel works in the southern Ohio valley will shortly erect another tin plate mill in the Wheeling, West Va., district. A new company has been incorporated under the name of the Wheeling Sheet & Tin Plate Co., with a capital of $750,000, all of which has been subscribed.

A 10-mill tin plate plant will be erected on a site shortly to be chosen. Contracts have been awarded for the greater part of the equipment and the first plate will be rolled early in the summer of 1913. A definite decision with reference to the property to be acquired will be made within ten days, options having been secured on two tracts of land in the immediate vicinity of Wheeling.

At a stockholders' meeting held on Aug. 3, at Wheeling, the following directors were chosen: Edward Hazlett, F. W. Henderson, B. W. Peterson, I. M. Scott, W. F. Stifel, H. F. Franzheim, A. S. List, W. A. Shirley and J. J. Holloway. The officers follow: President, J. J. Holloway; vice president, Edward Hazlett; secretary and treasurer, F. W. Henderson.

METAL MARKETS

Copper Users Want Deliveries

New York

Aug. 6.

Tin.—The domestic market for the past week has been quiet in sympathy with the market abroad. A decline to 44.37½c occurred last Friday, but the price was restored to 45.25c today, following an advance in the London standard market to 2s 6d. Stocks increased 76 tons in July, arrivals totaling 5,226 tons, and deliveries 5,150 tons, leaving a surplus stock on Aug. 1, including dock and landing, of 1,339 tons. Consumption continues heavy.

Copper. — Deliveries are good and important consumers request immediate shipment, this indicating slight reduction in stocks. Recent electrolytic sales ranged between 17⅝c and 17¾c, delivered 30 days. Lake is held at 17⅝c to 17¾c, and casting from 17⅜c to 17½c. Exports since Aug. 1, are 3,606 tons. The London standard market advanced £1 for spot and £1 5s for three months.

Lead.—A surprise to the trade was given by leading sellers, who reduced the price from 4.75c to 4.50c, but independents have not followed. Little business is being done.

Spelter.—The price has declined, metal now being held at 7.15c to 7.20c in New York for prime western brands. The Steel Corporation has appeared as a buyer of foreign spelter, operating under the drawback clause.

Antimony. — Cookson's is held at 8.60c, Hallett's at 8c and Hungarian at 7.50c to 7.75c.

Chicago

Aug. 5.

New Metals.—There is comparatively little change in prices and the demand continues to be very good. Copper and lead are strong and further increases seem to be indicated by the state of the market.

We quote, dealers' selling prices f. o. b. Chicago, as follows:

Lake copper, carload lots, 17⅜c; casting, 17½c; smaller lots, ¼c to ¾c higher. Spelter, car lots, 7.15c; lead, desilverized, 4.35c in 50-ton lots; corroding, 4.60c to 4.65c; sheet zinc, 8.75c, f. o. b. La Salle, in car lots of 600-pound casks; pig tin, 46.50c; Cookson's antimony, 8¼c; other grades, 7½c to 7¾c.

Old Metals. — Quotations on old metals remain unchanged and a stronger tendency is apparent. The demand has improved considerably and the market is very active. Prolongation of present conditions will bring about prices that are more satisfactory to the dealers.

We quote, dealers' selling prices, f. o. b. Chicago, as follows:

Copper wire, crucible shapes, 14½c; copper bottoms, 13½c; heavy red brass, 11½c; heavy yellow brass, 9¼c; No. 1 red brass borings, 11½c; No. 1 yellow brass borings, 8¾c; brass clippings, 9¼c; lead pipe, 4c; zinc scrap, 5¼c; tea lead, 3¾c; No. 1 aluminum, 16c; No. 1 pewter, 30c; block tin pipe, 40c; tin foil, 37c; linotype dross, 3⅛c; electrotype dross, 3⅞c; stereotype plates, 4¼c; stereotype dross, 3⅛c; prime slab zinc dross, $100 a ton.

NO CHANGES

In Operation Will be Made By Southern Iron & Steel Co.

Birmingham, Ala., Aug. 6. — No changes in operation will be made by the Southern Iron & Steel Co, recently adjudged bankrupt, according to a statement given out today by President James Bowron, who has been appointed sole receiver. The works actively engaged at present are a blast furnace, wire and nail mill at Alabama City, Ala., and coal and ore mines in different sections of the state. The blast furnace at Trussville, Ala., has been idle for some months. Mr. Bowron stated that the works will be sold under foreclosure, according to the intention of the holders of outstanding securities. This will be done to vest title where practicable to secure capital.

Will Make Works Studies at Johnstown, Pa.

John W. Gocher, chief engineer of the Cambria Steel Co., Johnstown, Pa., has been transferred to the executive department to make expert studies of the works improvements and extensions and efficiency of the works operations with such other duties as may be assigned him by the assistant to the president. Stewart M. Marshall succeeds Mr. Gocher as chief engineer, and John W. Shepherdson succeeds Mr. Marshall as assistant chief engineer.

MORE SHIPS

Ordered From Cramps Company By English House.

W. R. Grace & Co., the English shipping house which recently placed a large merchant vessel with the Wm. Cramp & Sons Ship & Engine Building Co., Philadelphia, has closed for three additional boats of similar type with the same builder.

This is probably the largest order for merchant vessels ever placed by a foreign interest with an American shipyard, and these boats will be the first of the Grace line to fly the American flag or to be enrolled under American register.

The vessels will constitute a new line of steamships to run between New York and the Pacific coast through the Panama canal. The likelihood of boats of American register being given preferential consideration on Panama canal tolls, has undoubtedly been the compelling factor in the placing of this contract on this side; but at the same time, English yards are now heavily filled with work.

The four steamships to be built by the Cramp yards will be 405 feet long, 36 feet 9 inches beam and of 8,000 to 10,000 tons burden each. Their design will follow the shelter-deck style of steam craft. The engines will be of the triple expansion type for the use of either coal or oil.

Lake Erie Ore Receipts

Out of total ore shipments of 7,600,233 tons during July 6,009,723 tons went to Lake Erie ports, distributed as follows:

Port.	July, 1912. Gross tons.
Buffalo	629,684
Erie	50,841
Conneaut	1,341,758
Ashtabula	1,368,024
Fairport	349,500
Cleveland	1,415,528
Lorain	583,735
Huron	74,097
Sandusky	.....
Toledo	162,688
Detroit	33,868
Total	6,009,723

The Hercules Mfg. Co., of Chattanooga, Tenn., will install a lighting system in Adairville, Ky. Acetylene will be used, and pipe will be laid for its distribution.

July Pig Iron Production Shows Big Decrease

Despite Additional Working Day Output 35,240 Tons Less — Daily Average Was Smallest Since February

The production of coke and anthracite pig iron in the country in July showed a marked decrease from the output in June, despite the fact that there was one more working day last month. The total production in July was 2,398,497 tons, compared with 2,433,737 tons in June, a decrease of 35,240 tons. The June record was surpassed in March, May and June of this year, but was larger than any other month since April, 1910. The daily average production was the lowest since February of this year. The average in July was 77,371 tons, compared with 81,125 tons in June, a decrease of 3,754 tons.

AVERAGE DAILY PRODUCTION.

	1912.	1911.
January	66,220	56,989
February	72,372	63,617
March	77,791	69,863
April	79,254	68,163
May	80,753	60,367
June	81,125	59,109
July	77,371	57,294
August	.....	61,995
September	.....	65,797
October	.....	67,486
November	.....	66,637
December	.....	65,558

By far the larger share of the loss in production was due to the decreased activities of the steel works, or non-merchant furnaces. These furnaces produced 1,799,971 tons, against 1,821,793 tons in June, a falling off of 21,822 tons. The total merchant iron produced in July was 570,248 tons, compared with 583,370 tons in June, a decrease of 13,122 tons.

The number of stacks active on the last day of July was 245, against 242 on the last day of June, making a net gain in the active list in July of three. The gain was made entirely by the merchant stacks, seven of which were relighted, while three blew out, making a net gain of four. Of the steel works, or non-merchant stacks in July, two were relighted, while three were blown out, making a net loss of one. In all, nine stacks were relighted in July and six were blown out.

MONTHLY PRODUCTION.

	1912.	1911.	1910.
January	2,052,806	1,766,658	2,599,995
February	2,098,796	1,781,285	2,428,937
March	2,411,529	2,165,764	2,588,736
April	2,377,621	2,044,904	2,477,700
May	2,503,341	1,871,388	2,374,802
June	2,433,737	1,773 282	2,288 279
July	2,398,497	1,776,108	2,158,124
August	.....	1,921,832	2,103,791
September	.....	1,973,918	2,048,461
October	.....	2,092,061	2,086,205
November	.....	1,999,100	1,910,385
December	.....	2,032,301	1,779,899
Total	16,276,327	23,198 601	26,845,314

The production of spiegel in July was 14,135 tons, against 11,271 tons in June, a net gain of 2,864 tons in July. The total output of ferro was 14,143 tons, compared with 17,303 tons in June, making a net loss of 3,160 tons in July.

Blast Furnace Notes

No. 2 stack of the Woodward Iron Co., Woodward, Ala., which was blown out May 18, was relighted July 3. No. 2 Vanderbilt stack of the same company was lighted July 12.

Stack B of the Iroquois Iron Co., South Chicago, Ill., was blown out July 25. Stack C of the same company was blown in July 29.

The new River No. 2 stack of Corrigan, McKinney & Co., Cleveland, which has been ready to blow in for a year, was lighted last month.

Shoenberger No. 2 stack of the American Steel & Wire Co., was blown out July 31 for relining.

Andrews & Hitchcock, Youngstown, O., blew in No. 2 stack at Hubbard, O., on Aug. 1.

The Kittanning Iron & Steel Co., Kittanning, Pa., expects to light its blast furnace at Rebecca, Pa., about Aug. 15.

No. 4 furnace of the Shenango Furnace Co., Pittsburgh, Pa., was blown out July 20 for repairs.

Stack F of the Bethlehem Steel Co., South Bethlehem, Pa., was lighted on July 20. All of the six stacks of the company at South Bethlehem are now in blast.

Keystone stack of the Reading Iron Co., Reading, Pa., was blown out on July 14. The Crumwold stack of the same company was banked for a week last month.

Saxton stack of Joseph E. Thropp, Everett, Pa., was blown in July 11. Earleston stack of the same interest was blown out July 25 for repairs.

The Alan Wood Iron & Steel Co., Philadelphia, Pa., blew in the second of its two stacks at Swede, Pa., on July 6. It had been out for only a few days.

Crozer No. 1 stack of the Virginia Iron, Coal & Coke Co., Roanoke, Va., will be blown in within a few days.

Resume After Long Idleness

Harrisburg, Pa., Aug. 6. — No. 1 blast furnace at the Steelton plant of the Pennsylvania Steel Co., was placed in operation today for the first time since it was closed down in December, 1910. A new pouring pit and runners have been added to the furnace.

Taking Equipment Bids.—Bids are being taken by the Alan Wood Iron & Steel Co. for the equipment for the new plate mill which the company will install in connection with its steel works at Ivy Rock, Pa. The construction of the buildings for this extension are now under way.

JULY PIG IRON.

States.	No. of stacks.	No. in blast last day of month. July.	June.	Total tonnage made. Merchant.	Non-Merchant	Totals— July.	June.
Pennsylvania	157	133	104	167 418	838,878	1,006,296	1,010,327
Ohio	71	49	47	131,033	392,941	523,974	540,011
Alabama	45	19	16	94,929	52,475	147,404	141,422
Virginia	24	6	6	18 373	.....	18,373	18,013
New York	26	17	17	58,369	112,356	170,725	177 227
New Jersey	7	1	1	5,309	.....	5,309	2,773
Illinois	26	19	20	29,236	213,967	243,203	256,770
Colorado	6	3	3				
Indiana	10	10	10				
Maryland	4	2	2				
Wisconsin	6	2	2	12,648	173,057	185,705	189,117
Kentucky	7	1	1				
West Virginia	4	2	2				
Tennessee	18	8	8				
Washington	1	.	.	27.759	16,297	44,056	46,887
Georgia	2	.	.				
Texas	3	.	.				
Minnesota	1	1	1				
Michigan	3	2	2				
Missouri	1	.	.	25,174	.....	25,174	22,616
Spiegel—All states						14,135	11,271
Ferro—All states						14,143	17,303
Totals	422	245	242	570,248	1,799,971	2,398,497	2,433,737

TAXATION OF DOCK ORE

Agreed Upon by Officials and Ore Representatives.

At a conference between representatives of the iron mining companies and tax officials of the state, representing the Ohio counties that have ports on Lake Erie, held in Cleveland, on Aug. 6, it was agreed to tax ore on Lake Erie docks, as of April 7, annually, at 40 cents a ton. There is at this period of the year an average of 6,000,000 tons on dock, about the lowest amount of the winter season, because ore begins to blow in again shortly thereafter. Very little of this ore on dock is unsold and much of it is virtually in a state of transit, the actual ownership resting in furnace interests scattered throughout many counties and several states. It is therefore a difficult matter to determine an equitable basis of taxation. The situation was further complicated by the fact that Pennsylvania does not tax ore on dock and the ore representatives contend that any burdensome tax at Ohio ports would increase shipments to Erie and materially lessen the industrial prosperity of such ports as Cleveland, Lorain and Ashtabula. It was therefore decided to put a valuation of 40 cents a ton on the ore, the assessment to embrace the ore on dock as of April 7 last. Both the iron mining companies and the tax officials are in harmony on this adjustment.

NEW CAPACITY

To Open-Hearth Department Will Be Fired About Oct. 1.

Pittsburgh, Aug. 7. (By wire.)—During the month of July, the Cambria Steel Co., Johnstown, Pa., exceeded all previous records for the month in former years by 25 per cent. All of the company's blast furnaces are operating in full, and three additional open-hearths now under construction will be fired about Oct. 1. These furnaces have a capacity of 75 tons each, and will make a total of 28 open-hearth furnaces at this plant. The company's rail mill is now fully engaged, although additional tonnage can be taken for shipment this year. Some inquiry has been received for 1913 deliveries, but no contracts have yet been placed.

Receivership Lifted.—The receivership of the Independent Steel Co., Pittsburgh, owning a plant at Kenova, W. Va., has been lifted by an order of the United States Supreme court. The plant, which has been operated by the receivers, E. E. Williams and H. C. Duncan, of Huntington, W. Va., has been idle.

EASTERN STACKS

Are Resuming More Actively—Several Stacks Going In.

Idle merchant blast furnaces in the eastern district are preparing to resume on a larger scale, owing to the improvement in the market. The No. 2 Crane furnace of the Empire Steel & Iron Co., at Catasauqua, Pa., which was relined about three months ago, but was restrained from resuming on account of the high coke market has now made satisfactory fuel arrangements and will blow in about Aug. 15. The fourth furnace of the Lackawanna Iron & Steel Co., at Lebanon, Pa., is going in this week, which will place that plant in full operation. One of the Hellertown, Pa., furnaces of the Thomas Iron Co., will blow in shortly. In steel works furnaces, one of the Steelton group of the Pennsylvania Steel Co. is about to resume, and this furnace plant will then be running full. The Bethlehem Steel Co. is now operating six furnaces or full capacity.

LARGE FURNACES

Will be Added to Open-Hearth Capacity of Cambria Steel Co.

The Cambria Steel Co., Johnstown, Pa., is building three additional open-hearth furnaces which will be completed and placed in operation about Oct. 1. These furnaces are of an exceedingly large type, having a capacity of 75 tons each and will increase the open-hearth steel output nearly 500 tons daily. Including the three under construction, the company has a total of 28 open-hearths. Last month's output of finished products was 25 per cent in excess of any previous July total in Cambria's history. All of the company's blast furnaces are in operation and the finishing mills are fully engaged.

The Merchant & Evans Co., Philadelphia, is remodeling the plant formerly operated by the West Virginia Bridge & Construction Co. at Warwood, a suburb of Wheeling, W. Va. Machinery will be installed for tinning black plate and for manufacturing the company's extensive line of specialties.

LABOR SHORTAGE

Causes Unusual Conditions in Scrap Market.

An interesting effect of the shortages of labor which are common in the steel industry at present has appeared in connection with the old material market in eastern territory. Because of the lack of sufficient forces of common labor to unload the cars as fast as they are received, a heavy accumulation of scrap on track has come about at several eastern Pennsylvania steel plants. At one of these works fully 200 cars are waiting to be unloaded; at another about 150 cars and parallel conditions prevail at other points. It seems likely that this congestion of shipments will cause the declaration of embargoes against the plants in question and probably little, if any, additional scrap will be sent in to these consumers until the present accumulations are cleared away. In view of the fact that some of these steel works are in the market and desirous of buying further quantities of scrap at the present prices, the situation presents somewhat of an anomaly in that buyers want to receive further tonnage, but are restrained from doing so. Usually the placing of an embargo by the railroads upon a plant arises from the fact that the particular company is not able to handle the incoming shipments due either to slack operations or filled up storage yards.

Good Crane Business is Confidently Expected

Crane makers the country over are looking forward to some important business coming out within the next few weeks. The largest list, which is expected but which has not yet been formally inquired upon, will include about 50 cranes for the Edgar Thomson works of the Carnegie Steel Co. It is stated by one authority that by the time the Steel Corporation concludes its recently published program for works improvements and extensions, it will have expended $2,500,000 for cranes alone.

The Erie Forging Co., Erie, Pa., will likely be in the market for about a dozen cranes for large works extensions. Additional land has been bought, and the building program is understood to be extensive.

Wilmer Wickersham has been appointed Chicago district sales manager of the La Belle Iron Works, Steubenville, O., succeeding Robert Bruce.

Cincinnati University's Engineering Building

Details of the Equipment With An Outline of the Co-Operative Course of This School Which Extends Over a Five-Year Period

At the beginning of the school year in September, 1906, Prof. Herman Schneider, dean of the engineering college of the University of Cincinnati, introduced an optional co-operative engineering course. It was the first of its kind ever established in any school and had been conceived by Prof. Schneider from his observations of graduate engineers. He concluded that a large number of engineers were in need of more practical training in connection with their theoretical work, and this co-operative course was devised to provide the practical training. This system has been in operation for practically six years and its success has been fully established. At first only about 27 of the 134 engineering students, then enrolled in the university, selected this course, which at that time covered a period of six years, the remainder preferring the regular four-year course. At the present time, however, of the 300 engineering students now attending the university, 250 are co-operative students and only about 50 take the usual courses offered in other branches.

This co-operative course has been investigated frequently by both manufacturers and educators, by whom it is highly recommended. The scope of the work and the facilities of the school have been extended recently by the erection of a new building equipped exclusively as an engineering laboratory of the most modern type.

The Co-Operative Course

When Prof. Schneider first installed the co-operative course, he made arrangements with certain manufacturing plants in Cincinnati whereby the co-operative students were to be given employment, the plan being that they were to work in pairs or groups, by spending alternate weeks in the plants and the school during the regular school year from September to June, six full years of alternative work and study being required before graduation. During the summer vacation months the students usually were employed in the plants connected with the course. Recently, however, a part of this plan has been improved and the school year has been extended in some branches of the work to 11 months, thereby reducing the course to five years. This has proved advantageous to the students as they gain a year by the new plan as compared with the six-year course. In all cases the dean of the engineering school and the professor of civil, mechanical, electrical, chemical, or metallurgical engineering, as the case may be, confer with the manufacturers in planning the course of shop work, so that the students may obtain a logical and carefully-arranged shop training. The work of the shops is further co-ordinated with the work of the university by a special set of teachers called co-ordinators, who are college graduates, thoroughly familiar with shop practice. They spend every morning at the university and every afternoon in the shop, and their function is to make a direct weekly co-ordination of the work of the shop and the theory of the university. In conjunction with this, a card system is employed by means of which everything that the student does in the shop that exemplifies a theory taught at the university, is called in detail to the attention of the teacher in theory, so that when the student comes to that particular theory in the class room, the exemplifications which he has had in his practical work in the shop are recalled and reviewed. It readily

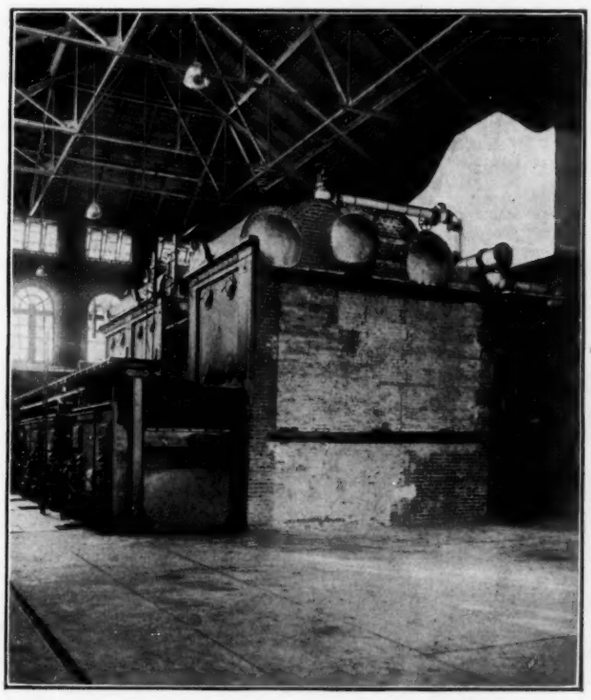


FIG. 1—BOILER ROOM IN THE POWER PLANT

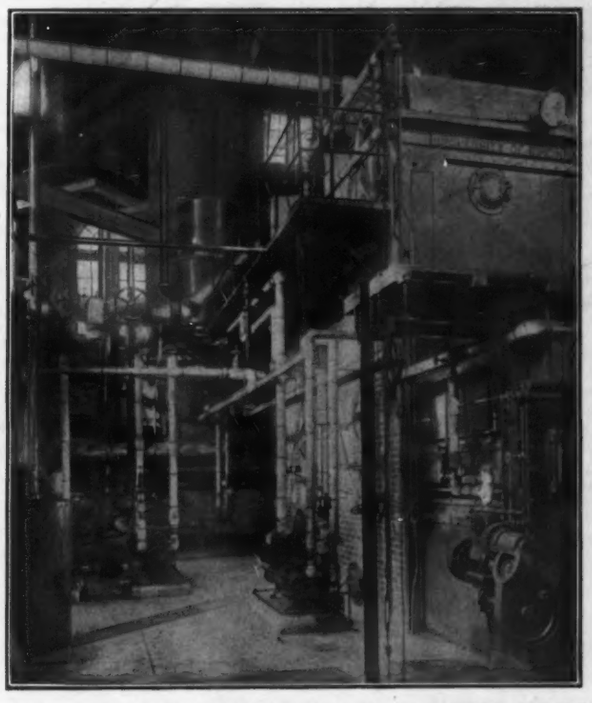


FIG. 2—ARRANGEMENT OF THE BOILER FEED PUMPS

FIG. 3—ELECTRICAL ENGINEERING LABORATORY

can be seen that out of the student's experience is drawn much of his course in mechanics, thermo-dynamics, machine design, strength of materials, etc.

The Engineering Building

The facilities of this co-operative course recently have been greatly extended by the addition of a new and exceptionally fine engineering building. One rather unique feature of the engineering laboratory is that it contains neither a foundry nor machine and wood-working shops, the reason being that the students obtain all of their shop work in the different commercial shops throughout the city. It has, however, a large and well equipped mechanical and electrical laboratory, drafting rooms, chemical laboratories, laboratories for the testing of materials and lecture rooms, as well as the general faculty offices. The building is 170 feet wide and 270 feet long, and was built at a cost of $300,000.

The main laboratory floor is 220 feet long, 40 feet wide and 30 feet high in the clear, and is served by a 7½-ton traveling crane. Adjacent to the main laboratory and forming part of it, are two 18 x 72-foot spaces and along the balcony overlooking the laboratory are two rooms, 18 x 72 feet each, which are used for special experimental purposes. The main laboratory is equally divided between the mechanical and electrical departments.

Mechanical Equipment

The mechanical equipment of this laboratory includes five steam engines of various types, two gasoline engines, two gas engines, one gas producer plant, two steam turbines and one separately-fired superheater connected with natural gas. The steam units are in parallel on the east side of the main laboratory and each is connected to a separate riser with a reducing valve, permitting the use of saturated or super-heated steam at any pressure up to 225 pounds. Included in the mechanical apparatus also are two machines for tensile tests, one for transverse tests, one for torsion tests and a number of smaller machines for making impact tests. This laboratory also contains several dynamometers for machine tool tests, and a floor specially arranged for the erection and testing of machines temporarily loaned for testing purposes. These machines at present include one two-stage air compressor, two rotary engines and one 16-inch shaper. Practically all of the main pipes serving the various units are carried below the main laboratory floor so as to afford unobstructed light. On the floor below the main mechanical laboratory is a space, 40 x 80 feet and 13 feet high, in which condensers, pumps and other hydraulic apparatus are installed. The air washing and heating apparatus for the building is adjacent to this space and is so arranged that tests can be made. At the end of the main laboratory floor an opening is provided through which machines can be lifted from trucks by the traveling crane.

The Electrical Laboratory

The electrical laboratory occupies the other half of the main laboratory floor. It is 110 feet long and 40 feet wide, is served by the 7½-ton traveling crane. The south end of the laboratory floor is devoted to electrical laboratory work of a general character. A varied assortment of generators and motors are included in the equipment, so that all of the ordinary electrical laboratory experiments can be made. There is also the usual equipment of instruments and one of the most important pieces of apparatus in this department is a General Electric oscillograph. Fig. 3 shows the method adopted for obtaining electrical service over the laboratory floor. Conduits extend underneath the floor from the switchboard to the various points where outlets are desirable for various experiments, and at all of these points small panels have been placed because of the severe service. The panels are of ebonite board, a tough insulating material. At each of these outlets there are two switches with open link fuse connections. All live contacts on the switchboard which

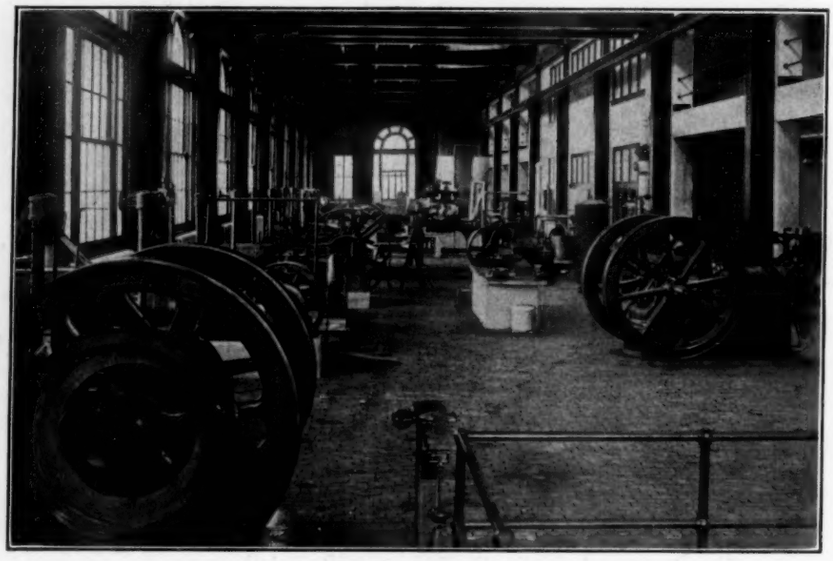


FIG. 4—MECHANICAL ENGINEERING LABORATORY

serve the laboratory floor are protected by circuit breakers, so that the instruments and machinery is protected at the switchboard as well as at the outlets.

The power furnished to the laboratory is alternating current. To furnish the direct current necessary, a motor generator set is used, which is located at one end of the switchboard and is controlled at the adjacent panel. The generator of this set is of the three-wire type, 35 kilowatts, and 230 volts across the outside wires. It is provided with commutating poles and compound field winding.

Crane Service

One of the most attractive features of the laboratory is the crane service which readily permits of arranging the machines in the proper combinations for the necessary tests. Although the outlets are well distributed over the floor and allow a wide variety of combinations of machines through the switchboard, there is often considerable economy of time in making connections and reading instruments by using the crane to collect the machines and arrange them in the most convenient way.

A balcony arranged on one side of the main laboratory is devoted to light laboratory work. The operating, mechanical and electrical features of arc lamps, control apparatus, magnets and similar equipment are studied here. The balcony connects directly with a well-equipped lecture room containing a combined stereopticon and projectoscope.

The photometric laboratory is located at one side of the main laboratory on the same floor. The equipment consists of a Sharp-Millar portable photometer and a bar photometer provided with standard lamps, which is used for calibration purposes and for determining the candle power of incandescent lamps. Provision also is being made to install sufficient apparatus to test all kinds of arc lamps.

FIG. 6—ONE OF THE DRAUGHTING ROOMS

There is a limited amount of equipment available for the study of telephony, by means of which the fundamental principles underlying the usual telephone installations are studied.

Study of Cement

The course in cement is so arranged that the student begins with the chemical analyses of raw materials, after which he mixes the raw materials in the proper proportions to make Portland cement. Having done this the student actually makes the cement in a small but complete mill, especially devised for this purpose, after which he analyzes his product chemically and makes the usual physical tests. In similar manner he makes other kinds of cement, going through the entire process with subsequent tests. Connected with this course are two well-equipped laboratories. Chemical tests of cement are made in one laboratory and in the other there is a small cement mill and the necessary mixing tables, baths, damp closets, tension testing machines, etc., for the physical tests.

In addition to the laboratories described, the engineering building contains six drafting rooms, 35 x 45 feet, with facilities for 40 students each. There are also the regular lecture, reading and faculty rooms and offices. The library is on the top floor and shelves have been installed for 25,000 volumes.

Power Plant

The new power plant, located in a detached structure about 200 yards from the engineering building, is thoroughly modern in every way and is so arranged that every detail of operation can be carefully and scientifically carried out. All of the water evaporated is weighed automatically and all the coal and ash are weighed on scales set in the main floor of the boiler room. A record sheet of each day's performance is filled out and filed, as well as the continuous automatic records of the lighting and power loads. A CO_2 recorder is connected to the breeching so that the reading for any boiler may be kept.

The boiler room contains three 300-horsepower Stirling boilers, each provided with a Dutch oven and Murphy stoker. Coal is delivered by wagons and is dumped through openings

FIG. 5—ENGINE ROOM

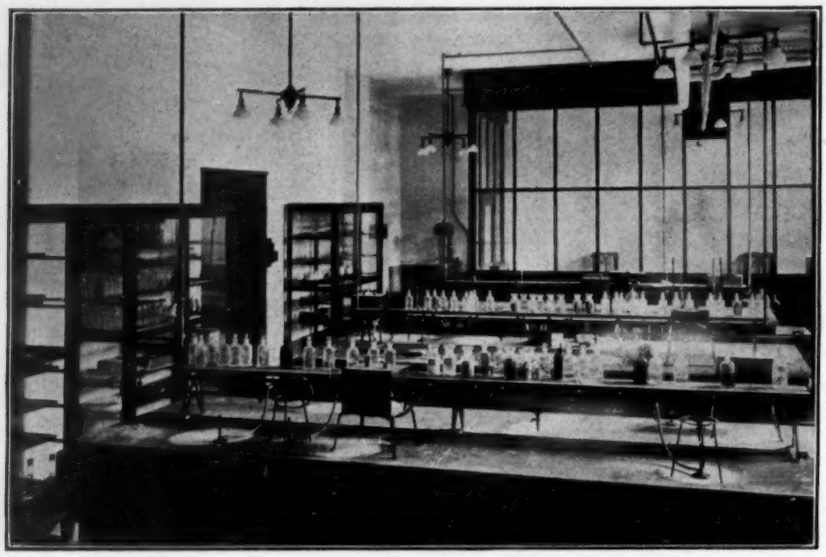


FIG. 7—ONE OF THE CHEMICAL LABORATORIES

in the roof of the storage bin, which has a capacity of 900 tons. Under ordinary circumstances the coal is never handled by shovel. One of the boilers is built for 225 pounds working pressure and may be isolated from the others for test purposes, being provided with a separate boiler feed and water measuring devices.

The engine room contains two Skinner engines direct-connected to generators of 125 and 175 kilovolt-ampere capacity, and current is generated at 2,300 volts, 3-phase, alternating, being transformed at the various buildings. All steam pipes and electric wires pass through underground concrete tunnels, 7 feet square, to the various buildings.

Book Review

History of Bridge Engineering; by Henry Grattan Tyrrell; 480, 6 x 9-inch pages; 330 illustrations; published by the author and furnished by THE IRON TRADE REVIEW for $4, postpaid.

This work traces the development of bridge building from the time when logs were thrown across streams by primitive man, to the building of modern reinforced concrete arches. Although termed a history, this volume serves admirably to reveal to engineers their rich heritage from the past. About one-third of the book is devoted to the earlier history of bridges and the chapter on Roman bridges gives a number of fine works in timber and stone, many of the latter existing at the present time and furnish admirable evidence of the lasting qualities of masonry construction. The greater portion of the work is devoted to bridge superstructures, very little space being devoted to foundations, falsework or erection. Theory and methods of design are purposely omitted and preference is given to exact data, costs, etc. The gradual development of the steel bridge is discussed under the different types of design, including the simple truss, tubular and plate, cantilever, arches, trestles and viaducts. The final chapter is devoted to reinforced concrete bridges.

Cost of Operating a 4-Ton Motor Truck

The Howards Co., New Haven, Conn., has been operating a 4-ton motor truck, built by the Kissel Motor Car Co., Hartford, Wis., and the data compiled on the cost of operation indicate that in 12 months the truck will effect a saving of $1,600, as compared with the cost of maintaining three two-horse teams formerly required to do the company's hauling. This saving is effected after considering as depreciation the entire first cost of the truck. A comparison of the cost of maintaining three double teams and operating the 4-ton truck follows:

THREE DOUBLE TRUCKING TEAMS.

Cost of six horses at $300	$1,800.00
Cost of three wagons at $450	1,350.00
Cost of six harnesses at $35	210.00
Cost of keeping horses, $25 a month	1 800.00
Repairing harnesses, wagons, etc.	100.00
Interest on investment	336.00
Drivers' salaries, $12 a week	1,872.00
Total, horses	$7,468.00

"KISSEL-KAR" FOUR-TON TRUCK.

Cost of 4-ton truck	$3,800.00
Gasoline, 2,400 gals. a year at 10c.	240.00
Oil, 156 gals. a year at 23c.	35.88
Driver's salary at $18 a week	936.00
Amortization, 10 per cent on $3.800.	380.00
Interest on investment	380.00
General overhaul, once a year	150.00
Total, truck	$5,921.88
Bal. in favor of motor-driven vehicle	$1,546.12

During the first few months of its operation the truck averaged 484 miles and the gasoline and oil consumption daily were 7.6 gallons and 2 quarts, respectively. It will be noted that in the figures covering the cost of operating the truck that in addition to charging the first cost of the truck, 10 per cent is charged for depreciation. On this basis the economies effected by the use of the 4-ton truck are much greater than the figures indicate. These figures demonstrate that a truck can replace 8 to 10 horses and still effect an annual saving of approximately $2,000. If the truck owner had written off 20 per cent for truck depreciation and estimated the truck's life at five years, a net saving of $3,000 per year would have been effected.

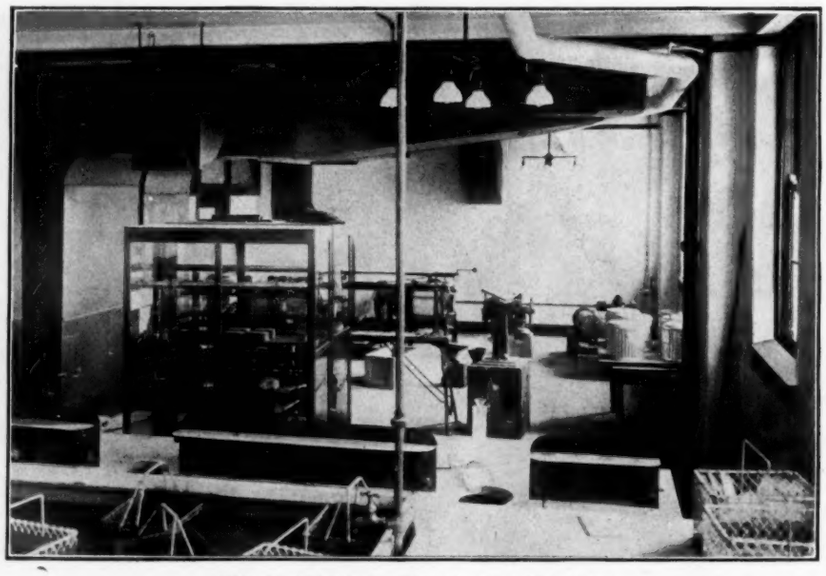


FIG. 8—CEMENT TESTING LABORATORY

Foreign Commerce Makes a Remarkable Record

Manufactures Exported Valued at More Than a Billion Dollars of Which Iron and Steel is Less Than One-Third—Manufacturers Insist Upon a Merchant Marine

By R D Williams

The foreign commerce of the United States made a new and remarkable record in the fiscal year ending June 30. The total value of the merchandise entering and leaving the country was $4,000,000,000. The value of manufactures exported was more than $1,000,000,000, and the value of non-dutiable merchandise entering the country was $1,000,000,000. Of this $1,000,000,000 worth of non-dutiable merchandise, about $900,000,000 worth was from foreign countries and $100,000,000 worth from Hawaii and Porto Rico.

Of the more than $1,000,000,000 worth of manufactures exported during the year, iron and steel products aggregated $275,000,000 and agricultural implements $40,000,000. This certainly is a trade to be proud of, but nevertheless it would be more augmented if it was developed along systematic lines. In an iron and steel way, practically none of the steel-making companies except the United States Steel Corporation makes even a pretense at developing export trade, though the Jones & Laughlin Steel Co. is now beginning to turn its attention to the trade. There is without doubt an inexhaustible market abroad for American products if properly cultivated; but there should be co-ordination of railways, steamship lines, banking interests and manufacturers, supported by an enlightened foreign policy on the part of the national government. Private enterprise has had to do a great deal of pioneering work that the general government should have done. Fortunately the Steel Corporation has been resourceful enough to do its own pioneering, and the results conclusively prove how great the market is. It should be added, however, that Great Britain is still a long ways in the lead over all other countries in the exportation of iron and steel products.

Unable to Compete With Foreign Labor

Your favor received, asking for our views as to the most efficient way to develop the export trade of the United States in iron and steel products. In such items where the material is the dominant factor a large export trade has been developed already. But where the principal cost is labor, it is an impossible proposition to compete in foreign markets with European countries who pay from 40 per cent to 60 per cent less for labor. The tariff bill now before congress may solve the question—it will close the mills or compel European wages for American labor.

JAMES LORD,
President American Iron & Steel Mfg. Co., Lebanon, Pa.

Let's Have a Merchant Marine

With regard to your letter asking for our views on the best way to stimulate export trade, we would make three brief suggestions and these are all up to the national government.

First—Let them establish a proper merchant marine.

Second—Let them subsidize American steamship lines on the same plan that the English and Germans do.

Third—Let the United States pay a little more attention to industrial education, very much along the lines that Germany takes care of her youth. What we need in this country more than anything else is skilled mechanics and an abundance of them. Vocational education should be the care of the government and not of individual enterprise.

S. H. RECK,
Rockford Drilling Machine Co., Rockford, Ill.

A Study of the Returns

A study of the returns indicates that our export trade embraces practically all of the leading commercial countries. Of course, the larger portion went to Europe, namely $1,350,000,000. South America took $125,000,000 worth and Asia about $115,000,000 worth.

Sewing machine exports in the current fiscal year made their highest record and aggregated nearly $10,000,000. Over $160,000,000 worth have been exported from the United States during the 48 years since the official record of their commercial movement began, of which sum $80,000,000 worth, or one-half of the total, were exported in the brief period since 1900.

Sewing machines have for many years been an important factor of the export trade. In 1864, the earliest year for which a record is available, the exports amounted to $1,062,708; in 1872, $2,436,085; in 1882, $2,647,515; in 1892, $3,133,992; in 1902, $4,022,697, and in 1912 will probably show a total of $10,000,000. The steady and substantial character of the growth is even more apparent from a study of the movement by decades. In the period from 1864 to 1870 the exports of sewing machines aggregated a little over $10,000,000; in the decade 1871-80, $18,000,000; in the decade 1881-90, $26,000,000; in the decade 1891-1900, over $30,000,000; in the decade 1901-10, more than $61,000,000, the average yearly exports having thus increased from $1,500,000 in the 1864-70 period to over $6,000,000 in the decade ending with 1910, with indications that the current year will record a total of approximately $10,000,000.

The countries to which these increasing exports of sewing machines are distributed represent every grand

An Efficient and Substantial Merchant Marine

I have not given the question of the development of the export trade of the United States in iron and steel products any careful study, but no doubt the conditions in the iron and steel trade would be much improved by the building up of a substantial merchant marine and the establishment of the policy of co-operation between manufacturer, railroad and ship owner, thus enabling the American manufacturer to sucessfully put his product into certain foreign markets at competitive prices with the foreign manufacturer. I hope that the day is not far distant when this country will enjoy the benefits of an efficient and substantial merchant marine.

JNO. B. NEWTON
President, Virginia Iron, Coal & Coke Co., Roanoke, Va.

division of the world. Europe leads all other sections, last year's exports thereto having aggregated $4,068,672 in value, as compared with $2,230,227 to South America, $1,662,689 to North America, $1,024,951 to Asia and Oceania, and $53,301 to Africa.

European Interest in Panama Canal

M. H. DeYoung, proprietor of the San Francisco *Chronicle*, recently reached Paris on his tour of the world. He says that he finds everywhere among foreign countries the greatest interest in the Panama canal and all are expecting to take advantage of it in the development of their export trade.

"The great maritime countries are all preparing to profit by the completion of the canal," he said. "There are hundreds of ships destined for the trade that will pass through the canal now in course of construction in Great Britain and Germany. There has arisen a pressing demand from foreign concerns for wharfage accommodation at San Francisco and Oakland on the opposite side of the harbor.

"The Pacific coast of the United States will receive an enormous increase in immigration, due to the lowering of the cost of travel for third-class passengers when it becomes possible to send them thither all the way by water from Italy, Austria, Greece, the Black Sea ports, Russia and Roumania. But in the matter of freights it is Japan and China which will be most benefited by the canal.

"I was amazed at the evidence presented to me personally of the tremendous production in those countries of partly manufactured articles intended solely for export, the finishing process to be applied elsewhere. In this line alone the Chinese trade will undergo vast expansion."

Malleable Iron Grease Cups

In a four-page circular issued by the McKinnon Iron Works, Ashtabula, O., malleable iron grease cups are illustrated and described. The body and shank are made of malleable iron while the plunger is brass. The cover is iron and fits closely over the top of the cup, thereby excluding dirt and grit. These cups are made in five sizes ranging from 2 to 3 inches in diameter and in capacities from 4 to 26 ounces.

The August number of the *Merry Molder*, published by the Osborn Mfg. Co., Cleveland, will contain articles and illustrations which will show the extensive employment of molding machines in foundries engaged in the production of automobile castings, including cylinders, pistons, piston rings, crank cases, etc.

The French Iron and Steel Industry

The imports of iron ore into France during the first four months of 1912 totalled 546,534 tons, an increase of 89,279 tons over the corresponding period of 1911. During the same period the exports of iron ore amounted to 2,303,440 tons, while in the same period of 1911, the exports were 1,830,743 tons, an increase of 472,697 tons. The imports of iron and steel amounted to 20,857 tons of pig iron, 5,474 tons of ferro-manganese and 33,286 tons of manufactured iron and steel. This was an increase in all lines over the corresponding period of 1911 and amounted, in the case of pig iron, to 1,202 tons; ferro-manganese, 3,144 tons; iron and steel products, 12,952 tons. The exports during the same period were as follows: Pig iron, 45,992 tons, an increase of 12,146 tons over the corresponding period of 1911; ferro-manganese, 3,343 tons; a decrease of 133 tons, and manufactured iron and steel, 59,130 tons, compared with 93,378 tons in the same period of 1911.

The Vulcan Engineering Sales Co., Chicago, Ill., has obtained the selling agency for the line of structural and plate working machinery, including punches, shears, rolls, bulldozers, etc., manufactured by the Rock River Machine Co., Janesville, Wis.

Difference in Foreign and American Wage Scales the Factor

While there are, no doubt, many methods of stimulating foreign trade, we believe that one very good way in which the American papers could help out very materially, would be to call attention, in carefully worded articles, to the tremendous difference in wage scales in Europe and America. If we could, by some means, increase the European wage scale, there is no doubt that the American manufacturers would have a very much better opportunity to export their products.

It has been demonstrated beyond any doubt that in some of the European countries, especially Germany, the workers in the machinery building industry are fully as efficient and competent as American workmen, and it has been also thoroughly demonstrated that the main reason why our trade in machinery is falling off in Europe is on account of this growing efficiency of the European workmen and the very low wage scale which he is able to command there. In Germany especially, there are very thorough training schools, and it would seem as though the publication of the right kind of information there relative to the additional price paid for labor in America would result in our securing just the kind of labor which we are most desirous of obtaining.

We also wish to call your attention to a fact which is perhaps not directly connected with your inquiry, but indirectly bears on it very materially. That is, that a great deal of the trouble which we are experiencing at present is due to tariff legislation. There is confusion in the minds of everyone connected with the machinery industry as to what constitutes a machine tool, and the court decisions which were cited at the recent tariff hearing showed very conclusively that the name itself is a misnomer and might just as correctly be applied to a mowing machine as to a metal working machine. It would therefore, seem as though it was of great importance to clear up this question.

To our mind, what we are making is in the first place simply machinery and in the class of metal working, and there is no reason, as far as we are able to see, why all makers of metal working machinery should not be protected with the same amount of duty, as no department of this industry seems to us to be especially favored in either the point of labor employment, expense for raw material, or any of the other elements which go to make up the complete cost of their product.

D. M. WRIGHT,
Henry & Wright Mfg. Co., Hartford, Conn.

Statistics of the American Foundry Industry

Number of Plants in the United States and Canada Engaged in Casting Gray Iron, Malleable, Steel, Brass and Aluminum

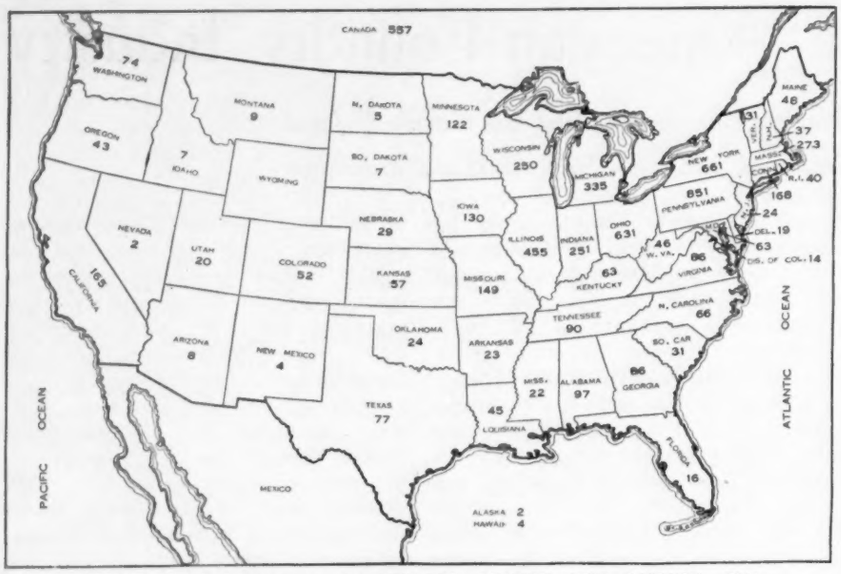
Statistics of the foundry industry of the United States and Canada, compiled by THE FOUNDRY, show a total of 6,538 plants engaged in the manufacture of gray iron, steel, malleable, brass and aluminum castings on July 1, 1912. On April 1, 1910, there were 6.594 foundries in the United States and Canada, and the net loss in a period of two years and three months is 54. On April 1, 1908, the total casting plants aggregated 6.366 and the increase in two years, to April 1, 1910, was 228. In 1908 and early in 1909, many new shops were erected as the existing capacity was insufficient to meet the requirements of the trade. The business depression which followed and continued almost through 1911 was unparalleled in the history of the foundry industry and to this must be attributed the slight decline in the total number of shops. In this connection it is interesting to note that 495 new foundries were built from April 1, 1910, to July 1, 1912, and of this total, approximately 100 had ceased operation on July 1 this year. The severity of the trade depression is reflected by the number of casting companies that passed out of existence. A total of 405 plants discontinued operations and 333 foundries were absorbed by other plants. These figures indicate that the foundry industry has passed through an exceedingly trying period, although the present activity foreshadows the erection of a large number of new shops during the next two years. In the compilation of these statistics, additions and extensions to plants are not included. Many shops have increased their capacity during the last two years and while there has been a decline in the total number of foundries, nevertheless there undoubtedly has been a large increase in the theoretical melt. In 1906 there was a total of 6,108 casting plants in the United States and Canada and the increase in six years aggregates 430.

In compiling these statistics, each plant was considered as a unit, regardless of the number of departments it contained. All of the converter steel casting plants operate gray iron departments as the iron is first melted in cupolas before being charged into the converters. Also, practically all of the malleable shops melt gray iron for making annealing boxes and the brass departments of gray iron, steel and malleable foundries far exceed the exclusive brass shops. Considering each foundry department as a unit, there were 9,236 casting plants in the United States and Canada on July 1, 1912, as compared with 9,158, April 1, 1910, an increase of 78.

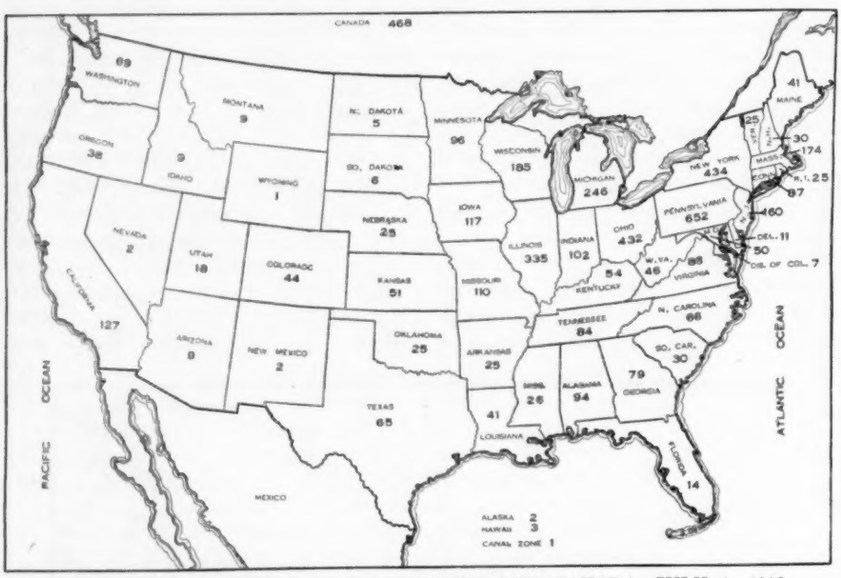
In Table 1 a comparison is made of the total foundries in the United States and Canada in 1912 and 1910. On July 1, this year, there were 5,996 casting plants in the United States, compared with 6,037 in 1910, a loss of 41. Canada has 542 foundries, against 557 in 1910, a loss of 15.

That the growing preference for steel castings is making big inroads in the gray iron branch of the foundry industry is indicated by the large decline in the number of gray iron shops. In the United States and

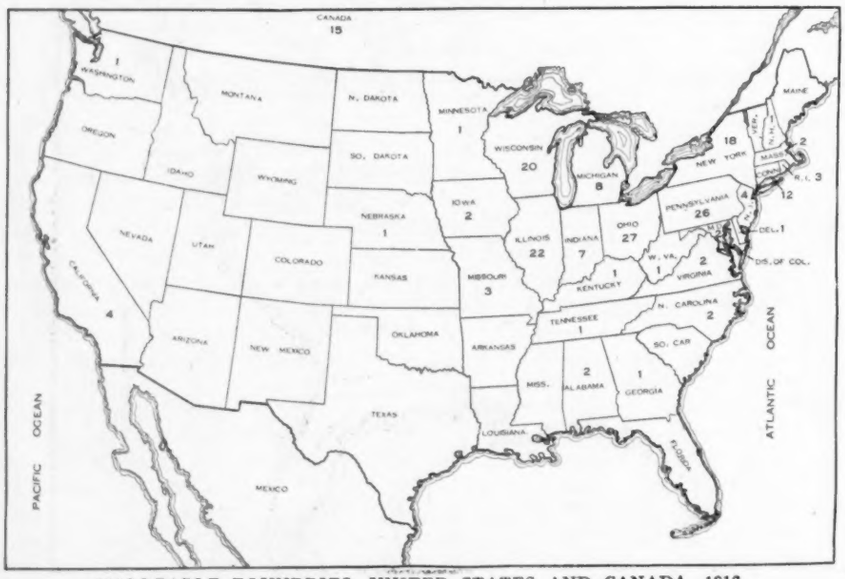
TOTAL NUMBER OF FOUNDRIES IN THE UNITED STATES AND CANADA, JULY 1, 1912.



TOTAL FOUNDRIES IN THE UNITED STATES AND CANADA, 1910



GRAY IRON FOUNDRIES, UNITED STATES AND CANADA, JULY 1, 1912



MALLEABLE FOUNDRIES, UNITED STATES AND CANADA, 1912

Canada there are 4,943 gray iron foundries, as compared with 5,157 in 1910, a loss of 214. Of this total there are 4,475 in the United States and 468 in Canada. In 1910 the United States had 4,680 gray iron plants and Canada 477, the losses in two years being 205 and 9, respectively.

The steel casting industry on the other hand, shows a remarkable growth. The net increase in the number of plants melting steel castings is 53, Canada being credited with two additional steel shops and the United States with 51. This phenomenal expansion in the steel casting producing capacity, to a large extent is due to the replacement of iron sections with cast steel. While no records are available of the classification of product, the number of converter installations far exceeds open-hearth and

Table I.

TOTAL FOUNDRIES IN THE UNITED STATES AND CANADA, 1912 AND 1910.

United States and Canada, 1912	6,538
United States and Canada, 1910	6,594
Total foundries, loss	56
Foundries in U. S., 1912	5,996
Foundries in U. S., 1910	6,037
Loss in U. S.	41
Foundries, Can., 1912	542
Foundries, Can., 1910	557
Loss in Can.	15

GRAY IRON FOUNDRIES IN THE UNITED STATES AND CANADA, 1912 AND 1910.

United States and Canada, 1912	4,943
United States and Canada, 1910	5,157
Total gray iron loss	214
Gray iron, U. S., 1912	4.475
Gray iron, U. S., 1910	4,680
Loss in U. S.	205
Gray iron, Can., 1912	468
Gray iron, Can., 1910	477
Loss in Canada	9

MALLEABLE FOUNDRIES IN THE UNITED STATES AND CANADA, 1912 AND 1910.

United States and Canada, 1912	190
United States and Canada, 1910	178
Increase.	12
United States, 1912	175
United States, 1910	168
Increase.	7
Canada, 1912	15
Canada, 1910	10
Increase.	5

STEEL FOUNDRIES IN THE UNITED STATES AND CANADA, 1912 AND 1910.

United States and Canada, 1912	318
United States and Canada, 1910	265
Increase.	53
United States, 1912	299
United States, 1910	248
Increase.	51
Canada, 1912	19
Canada, 1910	17
Increase.	2

crucible. During the last two years the production of converter steel castings showed an increase proportionately greater than that of open-hearth, while the crucible process is almost stationary in output. Although there are comparatively few electric furnace installations for making steel castings, this process will show big gains in the next few years. The total number of steel foundries in the United States and Canada is 318, against 265 in 1910. These are distributed as follows: United States, 299, and Canada, 19. In 1910, the United States had 248 steel foundries and Canada 17. Pennsylvania leads with 78; Ohio follows with 34, and

Table II.

TOTAL OF EXCLUSIVE BRASS FOUNDRIES AND BRASS DEPARTMENTS OF OTHER PLANTS IN THE UNITED STATES AND CANADA, 1912 AND 1910.

United States and Canada, 1912.....	3,680
United States and Canada, 1910.....	3,558
Increase.	122
Total brass, U. S., 1912.....	3,389
Total brass, U. S., 1910.....	3,375
Increase.	14
Total brass, Can., 1912.....	291
Total brass, Can., 1910.....	183
Increase.	108

EXCLUSIVE BRASS FOUNDRIES IN THE UNITED STATES AND CANADA, 1912 AND 1910.

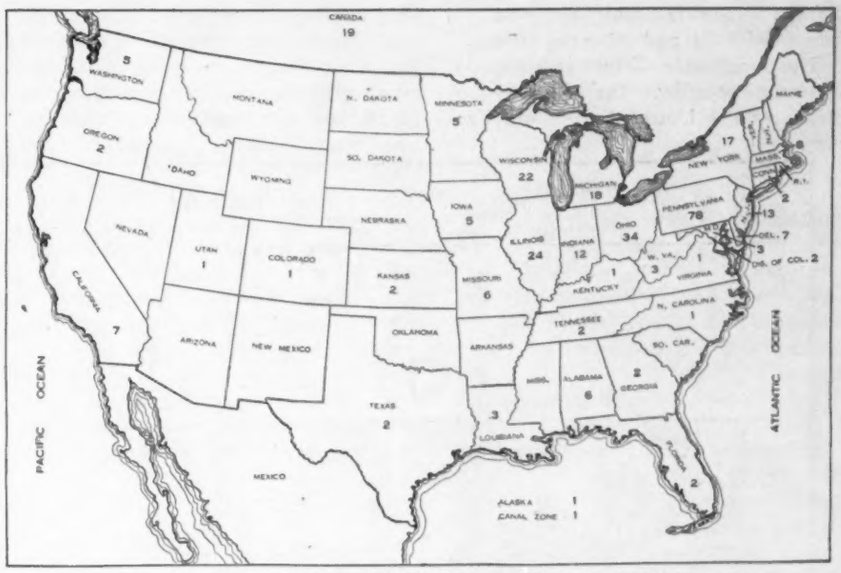
United States and Canada, 1912.....	1,258
United States and Canada, 1910.....	1,240
Increase.	18
Exclusive brass, U. S., 1912.....	1,197
Exclusive brass, U. S., 1910.....	1,170
Increase.	27
Exclusive brass, Can., 1912.....	61
Exclusive brass, Can., 1910.....	70
Loss	9

BRASS DEPARTMENTS OF GRAY IRON, MALLEABLE AND STEEL FOUNDRIES IN THE UNITED STATES AND CANADA, 1912 AND 1910.

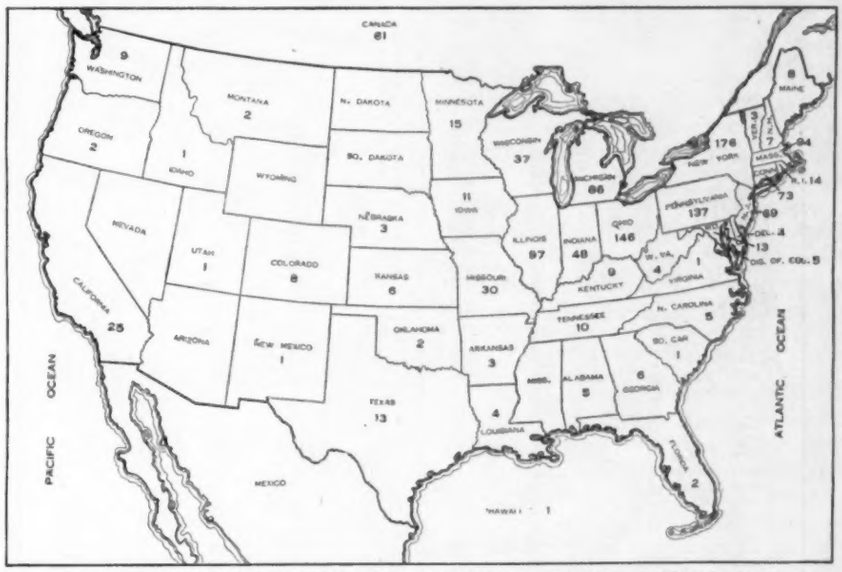
United States and Canada, 1912.....	2,408
United States and Canada, 1910.....	2,318
Increase.	90
Brass depts., U. S., 1912.....	2,178
Brass depts., U. S., 1910.....	2,205
Loss	27
Brass depts., Can., 1912.....	230
Brass depts., Can., 1910.....	113
Increase.	117

FOUNDRIES MELTING ALUMINUM IN THE UNITED STATES AND CANADA, 1912 AND 1910.

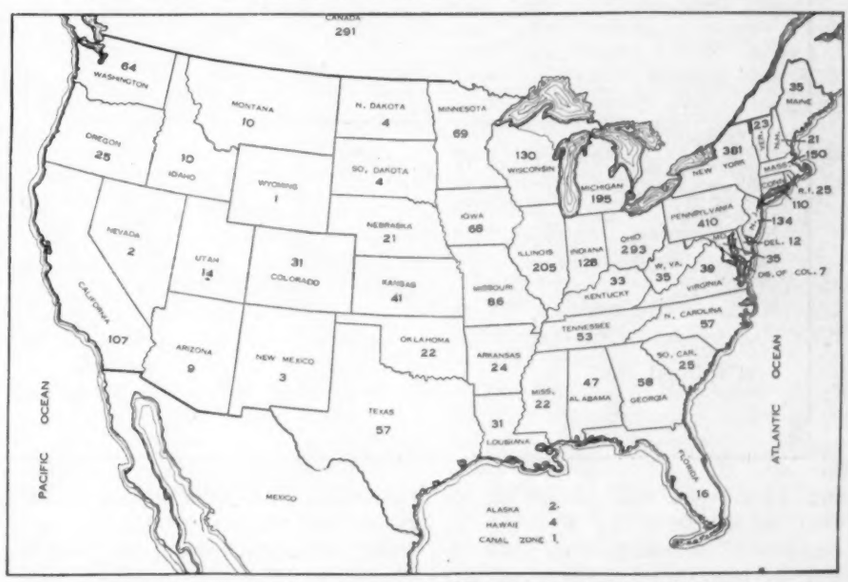
United States and Canada, 1912.....	2,019
United States and Canada, 1910.....	1,679
Increase.	340
United States, 1912.....	1,881
United States, 1910.....	1,569
Increase.	312
Canada, 1912	138
Canada, 1910	110
Increase.	28



STEEL FOUNDRIES IN THE UNITED STATES AND CANADA, 1912



EXCLUSIVE BRASS FOUNDRIES, UNITED STATES AND CANADA, 1912



FOUNDRIES MELTING BRASS. UNITED STATES AND CANADA, 1912

Illinois and Wisconsin are third and fourth with 24 and 22, respectively.

The malleable iron industry is growing steadily, the number of plants in the United States and Canada having increased from 178 in 1910 to 190 in 1912. The net increase is 12, of which seven are credited to the United States and five to Canada. The distribution of plants in 1912 follows: United States, 175, and Canada, 15; 1910, United States, 168, and Canada, 10. The malleable iron melting capacity of existing plants also has been extended by the installation of a large number of furnaces, and while steel castings have made perceptible inroads into malleable, these statistics would indicate a normal increase in the output of malleable castings. Ohio leads with 27 malleable shops, and the other states rank in the following order: Pennsylvania, 26; Illinois, 22; Wisconsin, 20; New York, 18, and Michigan, 8.

The manufacture of brass castings shows a greater growth than any other branch of the foundry industry. This, in large measure, is due to the expansion of the automobile

Table III.

FOUNDRIES IN THE UNITED STATES AND CANADA BY STATES AND PROVINCES, 1912 AND 1910.

	Total foundries, 1912.	Total foundries, 1910.	Increase or decrease in two years.	Gray iron foundries, 1912.	Gray iron foundries, 1910.	Exclusive brass foundries, 1912.	Exclusive brass foundries, 1910.	Brass foundries departments of other shops, 1912.	Total brass foundries, 1912.	Malleable iron foundries, 1912.	Steel foundries, 1912.	Foundries melting aluminum, 1912.
United States:—												
Alabama	99	97	+2	94	92	5	4	42	47	2	6	18
Alaska	2	2	....	2	2	...	...	2	2	..	1	1
Arizona	9	8	+1	9	8	...	...	9	9	..	..	3
Arkansas	28	23	+5	25	21	3	2	21	24	..	..	11
California	150	165	—15	127	134	25	28	82	107	4	7	76
Canal Zone	1	...	+1	1	...	...	...	1	1	..	1	1
Colorado	52	52	....	44	45	8	7	23	31	..	1	17
Connecticut	170	168	+2	87	85	73	73	37	110	12	2	64
Delaware	19	19	....	11	9	4	4	8	12	1	7	5
Dist. of Columbia	13	14	—1	7	8	5	5	2	7	..	2	5
Florida	16	16	...	14	14	2	2	14	16	..	2	8
Georgia	85	86	—1	79	79	6	7	52	58	1	2	25
Hawaii	4	4	...	3	4	1	...	3	4	..	..	1
Idaho	10	7	+3	9	6	1	1	9	10	..	..	4
Illinois	450	455	—5	335	346	97	92	108	205	22	24	138
Indiana	259	251	+8	102	200	48	42	80	128	7	12	71
Iowa	130	130	....	117	119	11	9	57	68	2	5	44
Kansas	57	57	....	51	50	6	7	35	41	..	2	32
Kentucky	63	63	....	54	55	9	7	24	33	1	1	24
Louisiana	45	45	....	41	41	4	4	27	31	..	3	7
Maine	49	48	+1	41	39	8	9	27	35	..	..	17
Maryland	64	63	+1	50	47	13	14	22	35	2	3	16
Massachusetts	277	273	+4	174	177	94	88	56	150	2	8	89
Michigan	340	335	+5	246	246	86	82	109	195	8	18	125
Minnesota	114	122	—8	96	101	15	17	54	69	1	5	41
Mississippi	26	22	+4	26	21	...	1	22	22	..	..	6
Missouri	145	149	—4	110	116	30	32	56	86	3	6	49
Montana	11	9	+2	9	9	2	...	8	10	..	..	3
Nebraska	29	29	....	25	27	3	2	18	21	1	..	18
Nevada	2	2	....	2	2	...	...	2	2	..	..	...
New Hampshire	37	37	....	30	30	7	7	14	21	1	..	14
New Jersey	240	249	—9	160	169	69	69	65	134	4	13	72
New Mexico	3	4	—1	2	3	1	1	2	3	..	..	1
New York	631	661	—30	434	484	176	180	205	381	18	17	209
North Carolina	71	66	+5	66	61	5	5	52	57	2	1	24
North Dakota	5	5	....	5	5	...	...	4	4	..	..	2
Ohio	618	631	—13	432	452	146	147	146	293	27	34	171
Oklahoma	27	24	+3	25	23	2	1	20	22	..	..	11
Oregon	42	43	—1	38	39	2	3	23	25	..	2	15
Pennsylvania	841	851	—10	652	672	137	131	273	410	26	78	211
Rhode Island	40	40	....	25	27	14	12	11	25	3	..	13
South Carolina	31	31	....	30	31	1	...	24	25	..	..	10
South Dakota	6	7	—1	6	7	...	...	4	4	..	..	3
Tennessee	95	90	+5	84	77	10	12	43	53	1	2	30
Texas	78	77	+1	65	65	13	12	44	57	..	2	24
Utah	19	20	—1	18	19	1	1	13	14	..	1	8
Vermont	28	31	—3	25	26	3	5	20	23	..	..	9
Virginia	87	86	+1	86	86	1	...	38	39	2	1	30
Washington	80	74	+6	69	67	9	6	52	64	1	5	29
West Virginia	51	46	+5	46	42	4	3	31	35	1	3	11
Wisconsin	246	250	—4	185	192	37	36	93	130	20	22	64
Wyoming	1	...	+1	1	...	...	...	1	1	..	..	1
Total in United States	5,996	6,037	*—41	4,475	4,680	1,197	1,170	2,178	3,389	175	299	1,881
Canada:—												
Alberta	4	4	....	4	4	...	1	3	3	..	..	2
British Columbia	19	18	+1	18	17	1	...	14	15	..	1	6
Manitoba	12	11	+1	10	10	2	1	6	8	..	1	5
New Brunswick	24	24	....	20	20	4	4	13	17	..	..	4
Newfoundland	2	2	....	1	1	1	1	...	1	..	..	...
Nova Scotia	37	36	+1	32	32	4	4	20	24	1	2	7
Ontario	330	348	—18	284	294	37	46	128	165	9	6	84
Prince Edward Island	4	4	....	4	4	...	...	2	2	..	..	...
Quebec	108	109	—1	94	94	12	13	42	54	5	8	29
Saskatchewan	1	....	+1	1	....	...	...	1	1	..	..	1
St. Pierre Et Miquelon	1	1	....	....	1	...	...	1	1	..	1	...
Total in Canada	542	557	*—15	468	477	61	70	230	291	15	19	138
Total in United States and Canada	6,538	6,594	*—56	4,943	5,157	1,258	1,240	2,408	3,680	190	318	2,019

*Net Decrease.

industry and in the leading motor car building centers the increase in the number of brass foundries is most pronounced. In compiling the statistics of the brass foundry industry, care was exercised to secure accurate data regarding brass shops exclusively, and those operated as departments of gray iron, steel and malleable foundries. The total number of plants melting non-ferrous metals in the United States and Canada in 1912 was 3,680, against 3,558 in 1910, an increase of 122. The United States had 3,389 in 1912 and 3,375 in 1910, while Canada records the remarkable increase of 108 in two years, having had 183 plants melting non-ferrous metals in 1910, which has been increased to 291 in 1912. The exclusive number of brass shops has been increased a net total of 18, from 1,240 in 1910 to 1,258 in 1912. The United States has 1,197 exclusive brass foundries and Canada, 61. Gray iron, steel and malleable foundries in the United States and Canada operated 2,408 non-ferrous metal departments in 1912, as compared with 2,138 in 1910, a net increase of 90.

Foundries Melting Aluminum

Aluminum is being melted more extensively in all kinds of foundries as a total of 2,019 shops reported casting this white metal in 1912, against 1,679 in 1910, an increase of 340. In the United States, 1,881 foundries are equipped to make aluminum castings, and in Canada there are 138 shops.

The accompanying charts graphically show the distribution of the casting plants throughout the United States and Canada, and Table III gives the total number of foundries by states and furnaces. Pennsylvania leads by a wide margin with 841 and the other states rank in the following order: New York, 631; Ohio, 618; Illinois, 450; Michigan, 340; Massachusetts, 277; Wisconsin, 246; New Jersey, 240; Connecticut, 170, and California, 150. In Canada the Province of Ontario leads in the number of foundries with a total of 330, and the Province of Quebec follows with 108.

Leading Foundry Centers

Chicago continues to rank first among the leading foundry centers of the United States, with New York City, second; Philadelphia, third, and Pittsburgh fourth. There has been a decline in the number of casting shops in the large cities of the United States, which is due to the high cost of foundry sites and the inability to obtain adjoining properties for extensions. Many foundries have been removed to new sites in the vicinity of these large centers where ample property can be purchased at a comparatively small cost to carry on foundry operations without restriction. Chicago has 169 foundries, as compared with 174 in 1910, and New York, with a total of 128 shops, suffered a loss of 20 in two years. Philadelphia now has 119, a loss of three. Pittsburgh, with 109 foundries, shows an increase of 16, and Detroit, ranking fifth among the foundry centers, has 98 plants, an increase of five since 1910. In Canada, Toronto leads with 44 casting plants, a net increase of two in two years.

Table IV.

LEADING FOUNDRY CENTERS OF THE UNITED STATES AND CANADA.

	Total foundries, 1912.	Total foundries, 1910.
Chicago	169	174
New York City	128	148
Philadelphia	119	122
Pittsburgh	109	93
Detroit	98	93
Cleveland	91	92
Cincinnati	74	76
Milwaukee	69	67
Buffalo	66	61
St. Louis	63	63
Newark	54	52
Boston	49	51
Toronto	44	42
Minneapolis	39	40
San Francisco	38	46
Baltimore	37	41
Indianapolis	32	31
Birmingham	31	30
Louisville	30	28
Montreal	29	30
Erie	29	28
Chattanooga	27	28
Dayton	27	28
Rochester	27	24
Toledo	25	27
Kansas City	25	24
Reading	24	25
Atlanta	23	22
Jersey City	22	28
Bridgeport, Conn.	22	20
Worcester, Mass.	21	22
Providence, R. I.	19	21
Seattle	19	18
Portland, Ore.	18	18
Racine, Wis.	18	18
Hamilton, Ont.	17	18
New Haven	16	18

Exhibition of Non-Ferrous Alloys

The International Exhibition of Non-Ferrous Alloys, held recently in London, reflected tremendous development in the production of alloys adapted to the diversified needs of modern industries. The exhibition was not entirely confined to non-ferrous metals and alloys, as some of the alloys shown were more closely connected with the iron and steel industries than with those of copper. The exhibition was entirely confined to still exhibits, no demonstrations of either metallurgical or mechanical processes being attempted, but it was noteworthy as showing the diversified character of the various alloys that have been developed to meet special conditions. The corrosion of condenser tubes is a subject that has attracted much attention, and the attempts that have been made to solve this problem were embodied in two alloys exhibited by the Yorkshire Copper Works, Ltd., Leeds, Eng.

One of these alloys, known as Bemal metal, has been employed successfully in competition with the brass mixtures ordinarily used for the same purpose. The other alloy is called Leespec metal and is intended for boiler tubes. It has a guaranteed tensile strength of 38,000 pounds per square inch with from 55 to 60 per cent elongation. This alloy is claimed to be able to withstand a considerable increase in temperature without material loss of strength; at 392 degrees Fahr. the tensile strength decreased only about 1,000 pounds, while the elongation remained at 69 per cent. Another alloy exhibited by the same company is known as Gumal metal, a gun metal adapted for castings exposed to acids. The exhibit of Thermit, Limited, London, included such alumino-thermic products as chromium, titanium, molybdenum and other metals and ferro-alloys, also an alloy used as a deoxidizer of brass known as Sab brass alloy, which is claimed to materially improve the physical properties of the brass to which it is added.

New Aluminum Alloys

A number of aluminum alloys were shown, among which were duralumin, sulphalium and vanalium. The first of these is well-known, and is suitable for rolled and drawn shapes; the second is a casting alloy not liable to blow-holes, with a low shrinkage and unaffected by sea water; the third metal, vanalium, is 3 per cent heavier than aluminum and can be rolled and cast. When cast it is said to have a tensile strength of 24,640 pounds per square inch; elongation, 8 per cent in 2 inches, and an elastic limit of 18,000 pounds per square inch. It melts at about the same temperature as aluminum, can be readily soldered and is unaffected by corrosion. Other exhibits included phosphor bronze, manganese bronze, Delta metal, nickel, German silver and anti-friction alloys.

A recent prospecting expedition in German Southwest Africa, it is stated, has been successful in discovering large deposits of iron ore containing over 60 per cent iron, which it is thought can be mined at small cost. No coal or tin was found, but there were traces of copper.

The Bessemer and Open-Hearth Steel Processes[1]

Their Development Since 1870, With Statistics of the Increase in the World's Steel Output in a Period of 40 Years

By Arthur Cooper

In 1870, when the acid Bessemer process was fully established and the open-hearth process had just been introduced, the make of ingots in the world was as follows: Great Britain, 250,000 tons; Germany, 170,000 tons; France, 97,284 tons; United States, 38,840 tons; Austria-Hungary, 22,112 tons; Sweden, 12,193 tons; Belgium, 9,563 tons, a total of nearly 600,000 tons. These ingots were for the most part acid Bessemer, and the purpose for which they were used was chiefly rails.

In those early days, even in works producing their own pig iron, the steel department was operated quite independently of the blast furnaces and the rolling mills; none but the purest pig iron was used. This was carefully selected by fracture, and, where more than one make was introduced charges of the weight required were made up of a mixture of the different brands, so as to correct variations in any individual brand; and if for conversion by the Bessemer process, each charge was melted down in a separate cupola at a great cost in coke; the ingots produced were allowed to cool down, and afterwards heated horizontally in small coal-fired furnaces preparatory to their being hammered into blooms or slabs, which, after inspection, were again heated and rolled into finished articles.

No Laboratory Facilities

There was no organized laboratory control of the materials used, and the estimation of carbon by color in a sample taken from the blow or charge usually constituted the only chemical test.

A very large percentage of the ingots made were more or less red-short, often due to the irregular contents of manganese in the spiegel, which would have been detected and the unsatisfactory results prevented with efficient laboratory supervision.

Notwithstanding everything, excellent steel was produced from those ingots, that could be coaxed down into respectable blooms. The cost, however, compared with the present practice, in fuel, wages and waste, was enormous. The output of a pair of acid-lined converters was about 600 tons per week, and this quantity was considered a very fair week's work for a rolling mill.

Early in the decade, 1871 to 1880, the blooming or cogging mill took the place of the hammers, and with its aid some steel makers recognizing the importance of saving fuel, delivered their ingots singly, and as hot as possible, to the mill-heating furnaces, from which they were rolled off at one heat direct into rails; and at works where blast furnaces existed, molten iron was taken direct to the converters. Other outlets were found for the steel, as for ship and bridge building and for tinplates; but probably the most important development during this period was the discovery and establishment of the basic process, which was destined to render available for steel-making purposes, in all parts of the world, immense tracts of ore beds, which, by reason of their high content of phosphorus, could not be used for steel-making by the acid processes. The output of ingots in the world in 1880, is given in Table I.

Of the 4,000,000 tons of ingots produced in 1880, it will be noted that upwards of 80 per cent were made by the acid Bessemer process, which had been developed very rapidly during the ten years ending 1880, not only in Great Britain, but also in the United States, Germany, France and Belgium.

In the period from 1881 to 1890 the basic open-hearth process was established, and by-product coke ovens were first installed as adjuncts to blast furnaces, as it came to be recognized not only that the by-products reduced the coke cost, but also that the waste heat and waste gases could be converted into steam, and turned to useful account at the adjoining iron and steel works. Mr. Gjers also demonstrated that when the ingot, immediately after casting, was placed in a vertical pit lined with firebrick and allowed to soak, there was sufficient heat in it to enable it to be rolled into blooms and billets or rails.

Table I.

OUTPUT OF INGOTS IN THE WORLD IN 1880

	Great Britain. Tons.	United States. Tons.	Germany. Tons.	France. Tons.	Russia. Tons.	Austria-Hungary. Tons.	Belgium. Tons.	Sweden. Tons.	Tons.
Acid Bessemer	1,034,382	1,074,268	742,000	384,626	.....	87,881	91,700	.....	
Basic Bessemer	10,000	*	18,000	*	.....	17,835	3,300	.....	3,463,992
Acid open-hearth	251,000	100,851	.....	.....	.....	28,502	37,052	.....	.....
Basic open-hearth	*	*	.....	.....	.....	.....	*	.....	.....
Total in each country	1,295,382	1,175,119	760,000	384,626	307,305	134,218	132,052	30,313	4,218,715

*Not classified.

Slag as a Fertilizer

After numerous experiments on the continent and also in this country it was abundantly clear that the phosphoric slag from the basic converters, when ground into an impalpable powder, had a high manurial value. It must not, however, be imagined that this discovery was immediately turned to profitable account. Considerable difficulties were met with in grinding it satisfactorily, chiefly on account of the shots of steel with which it was interspersed.

Capt. Jones, in America, and Gustav Hilgenstock, in Germany, about

[1]From the presidential address delivered before the Iron & Steel Institute of Great Britain.

the same time, and quite independently of each other, demonstrated the great advantage of mixers or receivers between the blast-furnaces and the steel-converting plant.

The output of ingots in the world in 1890 is given in Table II, and it will be seen that from the years 1880 to 1890 the make of ingots had increased from 4,000,000 to 12,000,000 tons, the most notable increases being in the production of acid Bessemer steel in the United States, of acid open-hearth in Great Britain and of basic Bessemer in Germany.

Between 1891 and 1900 great improvements in appliances, and several important inventions, were introduced, such as the use of electricity for the driving of auxiliary machinery in iron and steel works, and also for driving small rolling mills. The most striking features in Table III, are the large increases since 1890 in the production of ingots in the United States, from 4,000,000 to 10,000,000 tons, of which 6,500,000 were acid Bessemer, and 2,500,000 tons basic open-hearth; and in Germany from 2,000,000 tons to 6,500,000 tons, of which 4,000,000 tons were basic Bessemer and 2,000,000 tons basic open-hearth.

While it cannot be said that the 10 years, from 1901 to 1910, were years of invention and novelties as were the 30 years preceding, great improvements have been made both in methods and in the perfecting of plant and appliances introduced during the latter part of the last century. Among the former may be mentioned the very important work of the engineering standards committee. The effect has been to reduce enormously the number of sections called for. The manufacturer may now be content to roll into stock when it suits his convenience to do so, with the certainty that he will not have the material left on his hands as was formerly frequently the case when almost every buyer had his own particular section and specification, which no other buyer could be prevailed upon to take. The advantage to the consumer of the adoption of the standard sections being quicker delivery (small lots frequently from stock) and reduced cost, practically no special rolls being now required.

Steel Output in 1910

The output of ingots in the world in 1910 is given in Table IV. Comparing the production given in Table IV, of the three largest steel producing countries for 1910 with the production of the same countries for 1900, it will be seen that in the United States, while the make of acid Bessemer ingots had increased from 6,500,000 to 9,500,000 tons, the make of basic open-hearth ingots had increased from 2,500,000 tons to 15,000,000 tons.

In Germany, while the make of basic Bessemer ingots had increased from 4,000,000 to 8,000,000 tons, the make of basic open-hearth ingots had incheased from 2,000,000 tons to 5,000,000 tons.

In Great Britain the only notable increase had been in basic open-hearth ingots, from 300,000 to 1,500,000 tons, the make of basic Bessemer and acid Bessemer and open-hearth having been substantially the same as in 1900.

It will also be noted that in these three countries together the make of basic open-hearth ingots in 1910 represented rather more than half the entire make by all the processes, against rather less than one-quarter of the make in 1900.

In the United States the basic open-hearth process is assuredly taking the lead, adapted as it is to produce pure steel of any quality from the softest to the hardest, from ores too low in phosphorus to be utilized by the basic Bessemer process, and too high for either of the acid processes.

In Germany, on the other hand, while the basic open-hearth process is making great headway, very large increases of plant for the basic Bessemer process, by which soft and medium hard steel can be produced with great regularity and at very low cost, are being installed, the phosphoric ores of Luxemburg and neighboring districts producing a cheap iron eminently suitable for conversion into steel by this method.

In France and Belgium, where similar ores are available, the chief extensions which are being carried out at the present time are in plants for the basic Bessemer process, assisted as it is very materially by the revenue derived from the rich phosphoric slag which it produces.

The output of the world of such slag during 1910 was as follows:

	Tons.
Germany	1,733,000
Great Britain	370,000
Belgium	360,000
France	335,000
Other Countries	105,000
Total	2,900,000

Practically the whole of this was ground and sold for fertilizing purposes, and realized on the average about £2 per ton delivered to the farmer, yielding to the steel-maker a credit of from 4s to 6s per ton of ingots made, and, where the phosphorus in the ore is not paid for, reducing the cost of his ingot by this amount.

In Great Britain the acid processes at present are the largest producers, and while there is no reason for supposing that so long as existing works can obtain pure hematite ores at reasonable prices there will be any serious falling off in the make of acid steels, the main and trusted products of this country for so many years, it is, I think, certain that because of the scarcity and of the increasing cost of these ores, future extensions of steel-making plant will be for the basic open-hearth process, which is not only capable of utilizing all domestic phosphoric ores, but also foreign ores that can be imported at a low cost, too high in phosphorus for the acid processes and too low to command a value for the phosphorus for the basic Bessemer process.

By-product coke, as originally made in this country, had an uphill fight,

Table II.

OUTPUT OF INGOTS IN THE WORLD IN 1890

	United States. Tons.	Great Britain. Tons.	Germany. Tons.	Austria-Hungary. Tons.	France. Tons.	Russia. Tons.	Belgium. Tons.	Sweden. Tons.	Italy. Tons.	Tons.
Acid Bessemer	3,611,091	1,612,730	.....	149,660	444,801	.....	.....	.....	.....	
Basic Bessemer	77,780	402,113	1,493,157	138,021	*	.....	.....	.....	.....	7,929,353
Acid open-hearth	423,232	1,462,913	.....	33,904	244,190	.....	.....	.....	.....	.....
Basic open-hearth	90,000	101,287	.....	178,015	*	.....	.....	.....	.....	.....
Other classes of steel	.....	.....	668,660	.....	.....	.....	.....	.....	.....	.....
Total in each country	4,202,103	3,579,043	2,161,817	499,600	688,991	372,625	236,226	167,878	157,899	12,066,182

*Not classified.

chiefly because it was much softer than the excellent bee-hive coke then in use. Its density of late years has been much improved by building the ovens of a width most suitable for the coals and by varying the time of coking, and coke makers who have had a lengthened experience maintain that by stamping the coal into a cake or block just large enough to fill the oven when pushed in, coke equal to that from bee-hive ovens can be produced from equal coals—that charging in a cake or block can be effected more expeditiously than by tipping the coal into the oven from the top and afterwards levelling it; that there is less loss of heat and that a greater output per oven can be obtained.

Great improvements have also been made in the processes for the recovery of the tar and ammonia, giving better yields of by-products and reducing the cost of working expenses and repairs.

The chief improvements which have taken place in blast furnaces during recent years, following the use of larger volumes of air at higher temperatures, have been in the perfecting of the mechanical charging appliances so arranged that the materials can be uniformly distributed in the top of the furnace, at almost any speed required, at a very low cost in labor and in maintenance, and without any loss of gas when the bell is lowered, and also in the construction of the boshes and of the stacks, both now frequently cooled by water sprays or troughs, or by bronze or some other pattern of water-cooled blocks, by which means the life of the furnace-lining, which was shortened very considerably in the early days of rapid driving, has been materially increased; but probably one of the most important developments in connection with blast furnaces has been the cleansing of the whole of the gases, for, not only has it been proved absolutely necessary to use perfectly clean gas in the gas engine, but it has been found very advantageous to rough clean also that used for stoves and boilers, as with such gas the necessity for laying off the stoves to remove the dust, with the consequential costly repairs, and the periodical stopping of the entire plant for clearing the dust from the flues can be avoided.

Table III.

OUTPUT OF INGOTS IN THE WORLD IN 1900

	Acid Bessemer. Tons.	Basic Bessemer. Tons.	Acid open-hearth. Tons.	Basic open-hearth. Tons.	Total in each country. Tons.
United States	6,684,770	.....	853,044	2,545,091	10 082,905
Germany	223,063	4.141,587	147,800	1,997,765	6,510,215
Great Britain	1,253 903	491,134	2,862,566	293,485	4,901,058
France	919,283	*	645,881	*	1,565,164
Russia	.....	.....	.....	.....	1,830 000
Austria-Hungary	68,056	245,145	34,583	797,870	1,145,654
Belgium	.....	.....	.....	.....	654 827
Sweden	.....	.....	.....	.....	291,000
Spain	.....	.....	.....	.....	150,634
Italy	.....	.....	.....	.....	58,000
Canada	.....	.....	.....	.....	23,954
Other countries	.....	.....	.....	.....	400.000
		14,026,911	.....	.....	27,613,411

*Not classified.

Table IV.

OUTPUT OF INGOTS IN THE WORLD IN 1910

	Acid Bessemer. Tons.	Basic Bessemer. Tons.	Acid open-hearth. Tons.	Basic open-hearth. Tons.	Total in each country. Tons.
United States	9,412,772	.....	1,212,180	15,292.329	25,917,281
Germany	171,108	8,030,571	140,189	4,973,569	13.315,437
Great Britain	1,138.103	641,012	2,653,033	1,578,536	6,010.684
France	81,293	2,131,676	1,148,548	*	3,361.517
Russia	.....	.....	.....	.....	2,350,000
Austria-Hungary	34,874	297,500	1,803,829	*	2.136,203
Belgium	1,470,400	*	109,950	*	1,580,350
Canada	.....	.....	.....	.....	822,281
Italy	.....	.....	.....	.....	635,000
Sweden	.....	.....	.....	.....	370,700
Spain	.....	.....	.....	.....	219,530
Other countries	.....	.....	.....	.....	315.000
		23,409 309	.....	.....	57,033,953

*Not classified.

The two most favored methods of blowing blast furnaces today are by the reciprocating gas blowing engine using blast furnace or coke oven gas, or by the steam turbo blower, supplied with either high-pressure steam generated in boilers from similar gases, or with exhaust steam from rolling-mill engines, the turbine in this latter case being of the type known as mixed-pressure, which can be run with high-pressure steam at times when exhaust steam is not available. Both types of turbine depend for their efficiency upon perfect condensers and an ample supply of cold water.

In a blast furnace plant producing say 5,000 tons of iron per week with a consumption of 20 hundredweights of coke per ton, it has been established that by using modern gas blowing engines and gas electrical generators for driving outside machinery, such as hoists, charging apparatus, and pumps, there would be sufficient surplus gas if used in gas engines to generate, say, 22,000 indicated horsepower, or if used for heating or metallurgical purposes, equivalent to, say, 1,600 tons of coal per week.

If, on the other hand, turbo-blowers and turbo-electric generators using high-pressure steam were employed instead of gas engines, on the assumption that the turbine requires not more than double the quantity of gas required by the gas engine, to supply it with steam, there would be sufficient surplus gas to generate, say, 7,500 indicated horsepower, or if used for heating or metallurgical purposes, equivalent to, say, 1,150 tons of coal per week.

Mixers

Since their introduction in 1889, the use and value of metal mixers has greatly increased. It soon became clear that the single mixer of about 150 tons capacity as originally erected was far too small, for whenever the demand upon it, even for a short time, was increased, or the supply of molten iron was checked, the store was so much reduced that the metal often left the mixer of practically the same composition as it entered it, probably only a few minutes before.

Again, the pig iron made over the week-end when the steel works were idle had always been a difficulty. It caused delay and extra cost when used cold in the open-hearth furnace, and excessive cost and waste when it had to be remelted in cupolas for use in the converters.

The problem of how to insure more uniform iron for the steel plant, and how to save the cost of remelting the

Sunday pig, has been solved by greatly increasing the mixer capacity, and most large works are now provided with either one or two or more mixers of from 400 tons to 1,100 tons capacity, some of the simple cylindrical tank type without generators, but frequently supplied with coke-oven or blast-furnace gas burned over the top of the bath; the principal function of these—largely used on the continent and in the United States—is to receive the week-end iron, and to maintain a large store during the week. Very little, if any, cold metal can be melted, and practically no change takes place in the composition of the bath, except that brought about by the admixture of the different ladles of iron from the different blast furnaces.

Another design of mixer which finds most favor in this country, and which is also used in Canada, and France, and in Germany, is of the gas-fired regenerative tilting open-hearth furnace type. These serve not only the purpose of storing the week-end iron, but they will also melt up during the week large quantities of pig iron or scrap, thus obviating the use of cupolas altogether; and, further, by adding lime and ore, the contents can be refined down to almost any composition required with absolute regularity, thereby reducing the work to be done in the converters and finishing furnaces, shortening the time of the operation, and increasing the life of the linings and the weekly output. This type of mixer, of course, involves extra cost in working over that of the simple cylindrical tank type, but it is held that the extra cost is more than compensated for by the advantages above mentioned.

In the converting and melting departments great changes have taken place. Instead of the pair of five to eight-ton converters operated by steam blowing engines from coal-fired boilers, with its wasteful adjunct the cupola plant, turning out from 600 to 800 tons of ingots per week, and instead of the 10 to 15-ton open-hearth furnace, with an output of 100 to 200 tons per week, will be found in the most recent plants from three to six 25 to 35-ton Bessemer converters, with an output of upwards of 10,000 tons of ingots weekly, operated by gas blowing engines; and open-hearth furnaces of from 40 to 120 tons capacity, with a weekly output per furnace of from 600 to 1,200 tons of ingots.

The increase in output has been greatly facilitated by the improvements which have been introduced in recent years in the auxiliary machinery, such as charging machines, cranes, and ingot strippers, now for the most part operated by electricity generated by waste gases, and the arrangements of many of the modern works are such that the same crane which strips the ingot places it while still hot in the reheating furnace, from which it can be delivered by another crane to the cogging-mill.

Rolling Mills

In the rolling mill department the heating furnace now almost universally used is that arranged to heat the ingot in its vertical position, fired with either coal, producer gas, or waste gas from the blast furnace or coke ovens. The mills themselves have been greatly increased in capacity and power to deal more expeditiously with the larger production; and, for driving reversing mills where steam is used, two-cylinder engines are being displaced by engines with three-cylinders, either simple or compound, exhausting into a condenser, or into a turbo-blower or turbo-generator; the former, providing blast for the blast furnaces; the latter, electric current for driving out-lying machinery.

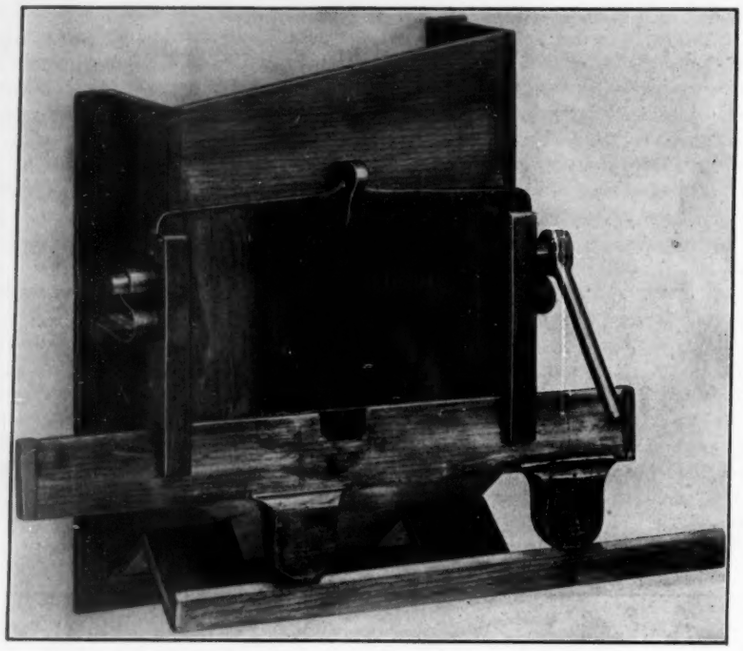
Another form of drive for reversing mills introduced at Teschen, Austria, in 1906, is by electric motor, on what is known at the Ilgner system, which method has recently been adopted, both for cogging and finishing mills, by many important works on the continent, chiefly in Germany, and by several in this country, numbering about 30 in all; while I understand, about 20 more such equipments are at the present time being installed.

For several years the question that has exercised the minds of iron and steel works engineers, particularly on the continent, perhaps more than any other, has been how to obtain most economically the maximum value from their coke oven and blast furnace gases, in order to save the coal used for producing power for their iron and steel works machinery and for their steel and heating furnaces, and with this object in view very large expenditures of capital have been incurred at all the important works. As an instance, I may mention that on a visit to one of the large German works consisting of coke ovens, blast furnaces, and steel works in 1897, I saw a range of boilers and an engine

Table V.

FINISHED STEEL PRODUCTS, 1910

	United States. Tons.	Germany, 1909. Tons.	Great Britain. Tons.	Russia. Tons.	France. Tons.	Belgium. Tons.	Austria. Tons.	Italy. Tons.	Sweden. Tons.	Spain. Tons.	Canada. Tons.
Bessemer	1,917,900	.....	711,915	.....	.....	.....	.....	.....	.....	.....	.....
Rails	.....	1,484,637	.....	601,830	372,694	374,890	55,873	121,370	.....	.....	.....
Open-hearth	1,715,900	.....	235,601	.....	.....	.....	.....	.....	.....	.....	.....
Tyres and axles	.....	241,957	.....	122,430	38,682	31,860	.....	1,771	.....	.....	.....
Bessemer	.....	.....	60,646	.....	.....	.....	.....	.....	.....	.....	.....
Structural steel (girders, joists, etc.)	2,600,000	.....	.....	194,000	225,898	168,030	141,046	.....	.....	.....	.....
Open-hearth	.....	.....	267,084	.....	.....	.....	.....	.....	23,417	.....	.....
Bessemer	.....	.....	28,933	.....	.....	.....	.....	.....	.....	.....	.....
Shapes (sections)	1,825,000	4,319,614	.....	1,040,000	308,986	137,830	.....	.....	.....	.....	.....
Open-hearth	.....	.....	530,034	.....	.....	.....	.....	.....	.....	.....	.....
Bessemer	.....	.....	103,181	.....	.....	.....	.....	.....	.....	.....	.....
*Merchant bars	4,000,000	.....	.....	.....	623,815	447,510	356,766	.....	204,955	.....	.....
Open-hearth	.....	.....	216,743	.....	.....	.....	.....	.....	.....	.....	.....
Wire rods	1,400,000	909,563	.....	.....	60,170	126,500	.....	7,700	137,465	.....	.....
Tubes	.....	165,426	.....	.....	43,179	.....	.....	4,430	.....	.....	.....
Plates and sheets	3,333,000	1,501,611	1,063,283	714,630	406,291	272,420	43,259	.....	22,081	.....	.....
Tin plates	647,688	55,427	.....	.....	41,449	.....	.....	33,820	.....	.....	.....
Sh't bars and tin plate bars	.....	.....	1,280,058	.....	.....	.....	.....	.....	.....	.....	.....
Forgings	.....	413,149	112,071	.....	46,147	2,510	.....	.....	43,690	.....	.....
Steel castings	921,686	.....	66,492	.....	34,375	.....	.....	.....	.....	.....	16,403
Totals	18,361,174	9,091,384	4,676,131	2,672,800	2,201,686	1,561,520	596,944	169,091	431,608	.....	16,403
		1910.								1909.	
Total finished products including other unenumerated products	.....	9,105,223	5,568,144	2,674,380	2,317,241	.....	.....	513,724	.....	218,409	.....



DRAFTLESS STOKING DOOR FOR AIR FURNACES

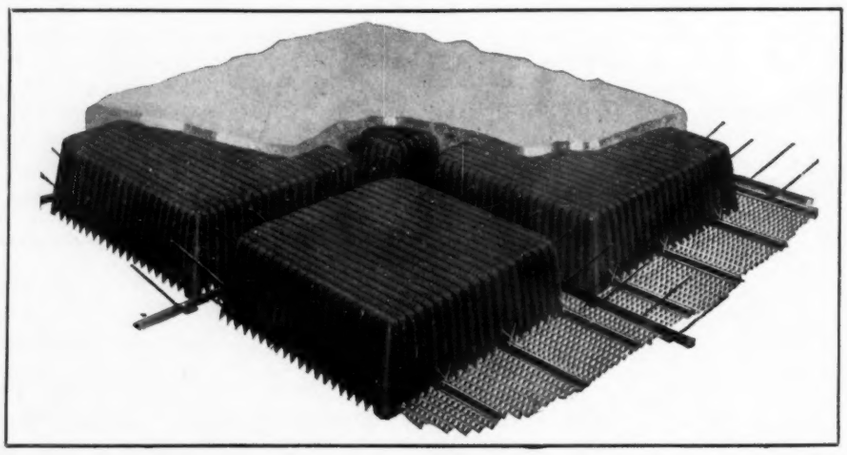
house containing four pairs of powerful compound steam-blowing engines of the latest design and in splendid condition, and which at that time were operating their blast furnaces. At a subsequent visit in 1906, I saw another large engine house containing a magnificent plant of gas blowing and power engines providing blast and electric power for their blast furnaces and steel works.

A Draftless Stoking Door for Air Furnaces

In the operation of air furnaces the first essential is the attainment of the maximum melting temperature and this can be obtained only by the accurate adjustment of the fuel and air ratio. If this is maintained uniformly a high temperature will be obtained in the furnace. However, this ratio will constantly fluctuate as a result of opening the fire box door for coaling, stoking, etc. To insure a uniform temperature throughout the heat, D. J. Carson, Lancaster, N. Y., has designed a draftless stoking door and fire box for air furnaces, as shown in the accompanying illustration. The coal is charged into a hopper directly above the fire box. The bottom of the hopper consists of a swinging door normally in a horizontal position and which is lowered when discharging the fuel from this hopper into the fire box. The door is hinged at one side and is lowered by operating the lever at the right. After the fuel has been discharged the door is returned to its original position and the fuel is distributed over the fire by inserting a poker through the opening in the sliding rail directly underneath the stoking door. This rail operates on two wheels to permit of adjusting the stoking opening at any point underneath the door. By this method the furnace can be fired without opening the stoking door, effecting a saving of fuel and greatly reducing the time required for firing and making a heat. As the stoking door is not opened, cold air does not enter the furnace when firing and difficulties from long heats and oxidized metal are eliminated. This type of fire box and stoking door has been in successful use for several years in a number of malleable iron plants. It is made of cast iron and is attached to the furnace with bolts.

"Floredome" Construction

A system of two-story steel, floor dome reinforced concrete construction which involves the use of dome-shaped steel tiles having only the bottom side open, as shown in the accompanying illustration, has been devised by the Trussed Concrete Steel Co., Detroit. These steel tiles are pressed cold from rolled steel plates and deep corrugations impart sufficient strength to support the truck loads during construction. They also provide a bond between the domes and the concrete and serve as additional reinforcement for the latter. In combination with reinforced concrete joists this system makes an ideal construction for floors and roofs. The domes take the place of the concrete where it is not effective in resisting stresses and thereby reduces greatly the deadweight of the construction without sacrificing strength. The reinforced concrete joists extend around the four sides of the domes and carry the loads in two directions to the support. The joists are deep and narrow so as to require the minimum amount of concrete and steel. The great depth of a floor built in this manner provides increased strength and rigidity and greatly reduces the dead weight of the, floor, effecting a material saving in the beams, columns and footings throughout the building. These domes are much lighter than terra cotta tile and, in addition, they are about three times as large. The domes are watertight, thereby preventing the loss of concrete between joints. The domes are made in six sizes, varying in depth from 6 to 12 inches and in weight from 5.3 to 9.7 pounds. The area covered by the base of the tile is 3.2 square feet.



REINFORCED CONCRETE FLOOR CONSTRUCTION IN WHICH STEEL DOMES ARE UTILIZED

Iron and Steel Exports for Year Make Record

Movement for June Large, But Not As Heavy As in May —Exports More Than Twelve Times the Tonnage of Imports

Tonnage exports of iron and steel in June amounted to 273,185 gross tons, making the largest month's total in the history of the export movement, with the exception of the 307,656 tons in the month preceding, the decrease from May to June being 11 per cent. The June exports were at the rate of 3,280,000 tons annually.

Exports in the fiscal year, the 12 months ending June, 1912, amounted to 2,509,791 gross tons, or 31 per cent more than in the preceding fiscal year, the record for a fiscal year, and 15 per cent more than in the calendar year 1911, which held the record for a calendar year.

The value of all iron and steel exports in June, including the tonnage lines as well as hardware, cutlery, machinery, etc., was $24,795,802, which did not make as good a showing as the tonnage, since it was exceeded in two preceding months of the year, April and May, and also, though by only a small margin, in April, 1911.

The record of exports by fiscal years is shown in the table below, which gives the weight of the tonnage lines, as well as the total value of all iron and steel exports.

It seems reasonably certain that the exports in the present calendar year will greatly exceed the record made by the fiscal year just ended, since the tonnage in the six months January to June was 1,423,023 tons, or at the rate of 2,850,000 tons annually, while the value was $144,364,185, or at the rate of $289,000,000 annually.

The decrease in the tonnage exports from May to June, 34,471 gross tons, was not uniformly distributed. The greatest decreases were in billets, sheet bars, etc., and in rails, each item decreasing about 12,000 tons, while structural material increased 9,000 tons. There were various decreases in other items, there being rather a considerable decrease in wire products.

Iron and steel imports in June amounted to 21,407 gross tons, making the month's showing the largest since June of last year. The total imports for the six months were 96,940 tons, or at the rate of 194,000 tons annually, very much less than in 1911 or 1910.

Our imports are inconsequential, since our June exports made more than a doen times as large a tonnage as our exports. In the six months of the year, the exports were fifteen times the imports.

IRON AND STEEL EXPORTS, GROSS TONS.

	June, 1911.	June, 1912.	Twelve months, ending June, 1911.	Twelve months, ending June, 1912.
Scrap	5,741	13,153	59,505	88,161
Pig iron	7,744	27,152	152,807	185,985
Billets, sheet bars, etc.	18,822	23,800	186,540	234,381
Wire rods	728	4,996	17,753	47,932
Rails	32,271	48,321	391,428	417,547
Steel bars	11,530	14,870	122,847	146,045
Iron bars	1,383	1,344	18,058	15,646
Structural	19,754	32,001	176,085	251,535
Hoop, band and scroll	*	800	*	8,238
Sheets & plates	29,351	47,822	304,401	465,317
Tin plates	4,197	9,228	31,339	81,205
Barb wire	7,488	7,924	82,952	103,100
All other wire	13,448	12,102	113,515	140,976
Cut nails	698	2,246	10,203	12,352
Wire nails	3,192	5,044	50,042	62,916
All other, including tacks	857	1,036	12,146	12,572
Pipes and fittings	16,662	20,928	180,673	231,670
Cast radiators, etc.	411	418	3,833	4,213
Totals	174,247	273,185	1,914,127	2,509,791

*Not separately stated prior to July 1, 1911.

IRON AND STEEL IMPORTS, GROSS TONS.

	June, 1911.	June, 1912.	Twelve months, ending June, 1911.	Twelve months, ending June, 1912.
Scrap	2,394	1,170	26,561	14,238
Pig iron	19,099	14,354	206,194	115,321
Blooms, billets and steel n. e.	2,074	1,423	38,266	22,485
Wire rods	1,702	1,042	18,330	13,927
Rails	*	308	*	3,297
Bar iron	2,281	2,682	30,416	23,672
Structural	*	62	*	2,863
Sheets and plates	169	208	3,623	2,521
Tin plates	1,680	158	42,553	2,954
Totals	29,399	21,407	365,943	201,278

*Not separately stated prior to July 1, 1911.

IMPORTS BY MONTHS.

	1910.	1911.	1912.
January	56,207	33,071	20,038
February	43,613	20,812	11,622
March	54,176	23,533	15,466
April	47,698	22,392	12,482
May	42,569	23,347	15,955
June	30,322	29,399	21,407
July	41,933	15,782	.....
August	36,879	19,943	.....
September	30,961	14,039	.....
October	31,455	21,035	.....
November	40,585	13,878	.....
December	31,575	19,665	.....
Totals	487,973	256,903	96,940

IRON AND STEEL EXPORTS, FISCAL YEARS.

	Tonnage lines, gross tons.	All lines, value.
1902	495,661	$98,552,562
1903	302,492	96,642,467
1904	676,590	111,948,586
1905	1,123,580	134,727,921
1906	1,331,323	160,984,985
1907	1,229,245	181,530,871
1908	1,161,270	183,982,182
1909	1,059,239	144,951,357
1910	1,396,395	179,133,186
1911	1,914,127	230,725,352
1912	2,509,791	268,154,262

IRON ORE IMPORTS BY COUNTRIES.

	June, 1912.	Twelve months.
Spain	10,646	165,332
Sweden	22,865	313,315
Canada	22,865	40,258
Newfoundland and Labrador	25,100	190,583
Cuba	112,320	1,270,969
Other countries	4,031	23,783
Totals	180,112	2,004,240

IRON ORE IMPORTS, BY MONTHS.

	1909.	1910.	1911.	1912.
January	105,233	284,823	102,600	154,118
February	61,749	170,427	94,823	129,693
March	108,676	163,633	134,785	157,469
April	74,782	236,135	133,900	178,502
May	97,393	243,833	217,467	194,482
June	124,214	193,415	118,296	180,122
July	172,316	248,810	200,845	.....
August	209,855	282,949	175,183	.....
September	164,613	208,892	184,456	.....
October	178,051	219,571	172,459	.....
November	174,966	197,833	128,019	.....
December	222,609	173,719	148,902	.....
Totals	1,694,957	2,591,031	1,811,732	994,376

VALUE OF IRON AND STEEL EXPORTS—TONNAGE AND NON-TONNAGE.

	1908.	1909.	1910.	1911.	1912.
January	$ 13,468,058	$ 10,329,388	$ 14,513,394	$ 18,739,961	$ 18,451,914
February	14,063,559	10,947,159	13,949,082	18,690,792	21,801,570
March	15,168,155	13,874,461	17,258,503	22,591,991	24,474,799
April	15,455,319	13,058,054	16,529,254	24,916,912	26,789,853
May	11,281,415	12,993,197	17,658,042	20,616,795	28,050,247
June	11,677,944	13,779,736	16,503,204	20,310,053	24,795,802
July	12,085,951	11,866,772	16,108,132	18,052,337	.....
August	12,058,561	14,136,219	17,628,538	20,704,154	.....
September	11,221,799	12,966,908	16,776,178	20,534,139	.....
October	11,535,063	14,249,598	17,452,085	20,799,591	.....
November	10,895,549	14,434,600	18,593,806	21,547,379	.....
December	12,231,741	15,075,183	18,300,710	22,186,996	.....
Totals	$151,113,114	$147,680,331	$201,271,903	$249,656,411	$144,364,185

EXPORTS OF TONNAGE LINES—GROSS TONS.

	1908.	1909.	1910.	1911.	1912.
January	74,353	70,089	118,652	152,360	151,208
February	81,773	84,860	110,224	150,919	204,972
March	96,681	94,522	124,980	216,360	218,693
April	93,285	100,904	117,921	228,501	267,312
May	64,341	109,977	135,306	178,589	307,656
June	69,770	114,724	120,601	174,247	273,185
July	86,796	100,680	128,216	162,929	.....
August	86,244	105,694	131,391	177,930	.....
September	76,732	97,392	119,155	181,086	.....
October	85,766	110,821	129,828	186,234	.....
November	71,130	115,943	155,138	187,541	.....
December	77,659	137,688	150,102	190,938	.....
Totals	964,242	1,243,467	1,537,943	2,187,809	1,423,023

THE IRON TRADE REVIEW

DEVOTED TO THE IRON, STEEL, MACHINERY AND FOUNDRY INDUSTRIES

Published Every Thursday by

The Penton Publishing Company

CLEVELAND

CHICAGO - - - - - - - - - - - 1328 Monadnock Blk.
CINCINNATI - - - - - - - - - 503 Mercantile Library Bldg.
NEW YORK - - - - - - - - - - - 1115 West St. Bldg.
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WASHINGTON, D. C. - - - - - - 501 Metropolitan Bank Bldg.
BIRMINGHAM, ENG. - - - - - - - - Princes Chambers

Copies published three months or more previous to date of current issue, 25 cents each

All communications relating to changes of advertising copy, discontinuances, etc., must be received ten days prior to the next publishing date.

Subscription, United States and Mexico $4.00 per year.
Canada and other Foreign Countries $5.50 a year

Entered at the Postoffice at Cleveland as Second Class Matter.

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Cleveland, August 8, 1912

Varied Views of Members of the Stanley Committee

The disagreements of the Stanley committee are the most conspicuous results of the long-continued and expensive investigation of the United States Steel Corporation. The inability of the committee to agree is not remarkable, for it merely reflects the large variety of opinions entertained by men in general concerning great industrial combinations. It also forecasts what might be expected in congress. If any important bill is to be passed by congress, we shall doubtless see a division of sentiment similar to that which existed in the Stanley committee, unless the Littleton plan should be adopted and differences of opinion become harmonized after a thorough investigation.

Chairman Stanley and three of his associates advocate the old idea of competition and are willing to do anything possible to restore the destructive business methods of the past. They propose to do this by making more drastic the Sherman law. They would place business men in the position of criminals, but would not grant them the rights which are enjoyed by the meanest criminal. When a man is brought into a criminal court, he is presumed to be innocent unless proved guilty, but Mr. Stanley and three of his associates would provide that if a corporation manufactures 30 per cent of the output of the country in its line, there shall be the presumption of guilt. Anybody can come into court, charge unreasonable restraint of trade and compel the defendant to prove that he is not guilty. The author of this percentage idea, Mr. Bryan, in a letter to THE IRON TRADE REVIEW, a number of years ago, drew the dead line at 50 per cent, but Stanley is not content to adopt the Bryan proposition. The provisions of the bill to amend the Sherman law are so palpably unjust that there is no danger that they will ever be adopted by an American congress.

The minority members propose plans which are even worse than those of the majority, for, barring the exceptions made by Messrs. Young and Sterling, they indorse the bills of the majority and then propose still further legislation, which it seems to us is entirely inconsistent with the plan which the minority report recommends of having an interstate commission of industry. The Stanley plan provides for strangulation of business. The minority plan agrees to strangulation and then provides for control. What statesmanship!

Another Stanley bill is to prevent industrial corporations owning common carriers, and Messrs. Gardner and Danforth, of the minority, concur in the recommendation for the passage of this bill. If there are abuses connected with common carriers owned by industrial concerns, those abuses ought to be corrected, but the fact that there are abuses does not justify compelling the sale of the properties any more than the abuses or inefficient service on a privately owned railroad would justify taking the railroad from its owner. Mr. Young, in his dissenting opinion, points out very clearly that the Interstate Commerce Commission and the state railroad commissions have ample power to correct all practices incident to the ownership of railroads by the Corporation which are unfair to the competitors or inimical to the general welfare. "To claim that it has not such power," says Mr. Young, "is to say that it has utterly failed in the purpose for which it was created." We do not believe that the Commission is a failure, but that it could remedy any abuses and will do so, if given a chance.

The Stanley report makes no attempt to be fair. It is manifestly a presentation of all the facts that could possibly be construed or distorted to the disadvantage of the Steel Corporation, while completely ignoring all facts tending to show the good results which have followed the organization of this mighty company. The presentation of the labor situation is a striking example of the unfair methods of Mr. Stanley. He paints a black picture of labor conditions and gives sensational newspapers throughout the country an opportunity to publish, under glaring headlines, articles doing the Steel Corporation a great injustice. Not one word is said about the efforts of the Steel Corporation to shorten the hours of labor, to insure safety of employes, to improve their home conditions, and not a line is devoted to telling about the millions of dollars spent for betterment and for pensions.

Mr. Young, on the other hand, deserves commendation for showing a spirit of fairness. After reading his conclusions one gets some idea at least of the attitude of the Steel Corporation on important matters

and is convinced that the position is not wholly indefensible.

The only one of the five reports which approaches the plane of statesmanship is that of Mr. Littleton, who is apparently the only member of the committee to grasp the immensity of the problem and to recommend a method which is practicable and fair for improving conditions. He would cut the whole question loose from politics and deal with it in a spirit of the utmost fairness. He would first inquire as to the facts relating to the great industries, and would do this through a joint committee of the senate and the house, created without regard to the political affiliations of its members. After having made the most thorough investigation and study possible, the joint committee would report such measure or measures as it believed would solve the problem of dealing with the great consolidations. Mr. Littleton does not insist upon any plan of his own, but he believes that if fair dealing can be established, prices will take care of themselves. He is utterly opposed to the idea of crushing business simply because it is big and he dissents from the Stanley plan of making more drastic the worst features of the Sherman law. Only concerns which insist upon dealing unfairly should be destroyed. "There should," says Mr. Littleton, "be no handicap placed upon genius, efficiency and skill. These laws should be drafted as an industrial code prohibiting specifically the well known devices by which one concern takes unfair advantage of another. A clear distinction should be made between industrial centralization, which brings together like concerns producing similar means for the purpose of controlling output and fixing prices, and the natural and orderly combination of enterprises which assembles under one control those corporations which, step by step and stage by stage, do their respective work in making a finished product out of raw material. In other words, there may be a very efficient, useful, and harmless combination of corporations, each of which performs a portion of the whole labor necessary to perfect a manufactured article—such a combination would increase profits and cheapen the article to the consumer—while a combination of corporations engaged in the same work upon a like article or enterprise, though reducing somewhat the cost of production, would acquire a dangerous control of output and prices."

In concluding his very able discussion of a great subject, Mr. Littleton says:

"If a concern admitted to the field of interstate commerce should obey the rules and laws provided for its government in that field, and should by skill, efficiency and energy grow to enormous size and earn rich rewards, I would count these rewards as the fruits of that industry, the harvest of energy and genius, and the crowning triumph of a civilization resting upon the doctrine of individualism."

In other words, Mr. Littleton would rejoice in the success of a great corporation, if it were fairly attained. We commend careful study of his report to all who wish to know the views of a big man, who, even during a presidential campaign, is able to see the good results to be obtained by allowing corporations to exist and conduct business fairly.

Looking back over a period of more than a year, during which this investigation has been pending, taking testimony of more than 5,000 pages, or over 3,000,000 words, and producing five reports of more than 600 pages, one is inclined to inquire, Was it worth while? The divergent opinions certainly do not prove that the investigation was worth all that it has cost. If, however, the joint committee proposed by Mr. Littleton should be created, and should take the evidence collected by the committee and consider it in a spirit of fairness to all concerned, the volumes of hearings would be found to contain much information of value.

Railroads, Pig Iron and Panama

It is hard to understand how ordinarily shrewd men can be as short-sighted as some railroad managers are regarding the Panama canal question. Free tolls for American vessels engaged in coastwise trade may in some few instances reduce railroad tonnage—but if conditions in the steel industry can be taken as any indication of general conditions, their loss in traffic will be much less than their gains in consequence of the development of the Pacific coast.

Pig iron on the coast is high—at present $22 per ton as against $15 at Chicago. There are very few manufacturing enterprises that it is possible to conduct without using iron or steel in some form. Construction on the coast is costly, with a consequent high rate in rentals. The manufacture of steel is an expensive process, owing to the distances from the source of supply and the cost of transportation. Furthermore, practically all of the iron that is used on the coast at present is made in English or other foreign furnaces, as the freight differentials across the continent enable them to compete successfully with American producers.

When pig iron from the Chicago and Birmingham districts can go through the canal, and especially if it can go through free of toll charges, it will be possible for American furnaces to take the business that now goes to fill the coffers of foreigners. The price of all finished lines on the coast will be reduced and general manufacturing will be advanced. When it is considered how much modern industry depends on iron and steel products, it is easily understood how much the canal will advance the development of the west coast and how greatly it has been retarded. The trans-continental railroads will lose little, because the tonnage of pig iron which they carry west is not important. They will be gainers from the general development of the west coast.

The roads running north and south will enjoy a heavy increase of traffic owing to the freight which will be carried to and from the canal.

While conditions in all other lines may not parallel those in the steel industry, it is safe to say that the situation as it affects the railroads is nearly the same. Panama will take only such traffic as can be moved slowly. Any shipments in which time is a factor will be shipped by rail and when it is considered that there will be many times the present amount of tonnage of all classes, it would seem obvious that rather than to do everything in their power to combat the canal and the free passage of coastwise trade, it would be more to their own interests to exert themselves in the opposite direction.

Nine Congressmen Propose Five Different Plans

For Dealing With Monopolies—Neither Democrats Nor Republicans Are Able to Agree—Various Methods of Strangulation and Regulation

Chairman Augustus O. Stanley, of the special committee appointed tc investigate the United States Steel Corporation, by resolution of the house, adopted May 4, 1911, submitted a report to the house Aug. 2, in behalf of the majority of the committee, Messrs. Bartlett, Beall, Littleton, McGillicuddy and himself. Mr. Littleton, however, submits a dissenting opinion. The three Republican members, Messrs. Gardner, Danforth and Young, submitted a minority report, but Mr. Young is unable to agree fully with the recommendations of his party associates and submitted a supplemental report. Still another report was filed by Mr. Sterling, of Illinois, who believes in the dissolution policy and opposes price fixing by the government. The majority report contains 248 pages and is made up largely of extracts from the evidence taken by the committee and by quotations from the report of Herbert. Knox Smith, commissioner of corporations, on the steel industry.

The report reviews at great length the development of consolidations in this country and the gradual formation of the companies which ultimately became merged in the Steel Corporation. Every possible effort is made to disclose any facts that can be construed as showing that these consolidations have been inimical to the interests of the public.

Over-Capitalization

There is extended comment upon over-capitalization. In part the report says:

The injury to the stockholders of the Steel Corporation by this prodigal absorption of its securities by those intrusted with the management and direction of its affairs was not to be compared with the greater and more far-reaching detriment to the industry itself as a result of this persistent and pernicious practice of stock manipulation and stock inflation by certain financiers who had secured the complete and absolute mastery of so large a part of this vast business.

They had, at the beginning, secured the consolidation of a heterogeneous assembly of steel and iron works, big and little, modern and antiquated, not only with a view to scientific and economical co-ordination of plants and processes, but to the curtailing of production and fixing prices.

Unrelated units, located here, there, and yonder, good, bad, and indifferent, had been collected under a common ownership, not to so much cheapen or expedite production—in the nature of things that was impossible, since they were often widely scattered, and as a rule were not assembled with any reference to the sequence of processes and stages of manufacture through which an article of iron or steel must pass from the raw material to the finished product—but were constructed and intended for identical operations; that is, hundreds of tin mills were in one company, tube mills in another, wire and nail plants in another, and so on. The operation of such concerns under one ownership could not in the nature of things cheapen production. It could and did afford an effective device for the regulation of that production and the steadying of the market.

These mines, mills, and furnaces, thrown together in a hurried and haphazard manner, had been capitalized at approximately 300 per cent of their actual value, and weighed and trammeled by this burden of excessive capitalization they were confessedly unable to meet impending competition from one single concern, until recently a limited partnership, which had avoided the evils of the stock exchange and the control of the syndicate.

The superiority of the Carnegie company was due to its superior and scientific integration, the technical skill and practical experience of its managers, and to the fact that its securities did not figure on the stock market. (H. K. S. Rept., p. 105.)

The Gastronomic Shadow

(From the Minority Report)

We find that there is a complete accord as to prices between the United States Steel Corporation and all the independents. In general, the United States Steel Corporation sets the prices and the independents follow suit.

Although from time to time so-called "Gary" dinners have been held, we regard these functions as the gastronomic shadow of the price understandings rather than as their substance.

The Hill Ore Lands

Many pages are given to consideration of the leasing of the Hill ore lands. The danger of a monopoly of ore is painted in glowing colors and it is declared that the acquiring of the ore reserves of the northwest was but a single one of the long and co-ordinated series of carefully prepared plans by which the Corporation proposed to dominate this business, in all its vast and varied ramifications throughout the whole domain of mining, manufacturing, transportation and sale of its product.

Control of Pig Iron Market

The report states that since its organization the Steel Corporation has purchased from other sources than its own blast furnaces, in a market which was deliberately "bulled", over 19,831,582 tons of pig iron. It is asserted that these purchases were made for the purpose of controlling the market for pig iron and thereby manipulating the price of semi-finished steel and finished steel products.

The Gary Dinners.

Of course the Gary dinners are not neglected. The conclusion of the majority of the committee is as follows:

Accepting this dinner of January, 1911, as fairly typical of the rest and the things said and done there as fairly representative of the things said and done at the others, we think the conclusion is irresistible that the Gary dinners were instituted as a means of conveying to the entire steel and iron industry information as to what the attitude of the United States Steel Corporation was upon the questions of output and prices and of impressing upon all engaged in the industry that it was the part of wisdom and prudence to govern themselves accordingly. We further believe that by this means prices were maintained, output restricted, territory divided, competition stifled, and trade restrained, just as certainly, just as effectively, and just as unlawfully as had been done under the discarded pooling agreements of former years.

The report states that the evidence submitted in regard to labor is instructive and impressive. The Corporation is charged with being hostile to labor unions and with forcing out American laborers to make room for foreigners.

Ownership of Common Carriers

The committee declares that there is no question that public interest requires the segregation of railroads and the Steel Corporation. The committee says:

In the ownership and operation of

common carriers is to be found the secret of both the Steel Corporation's profits and its power. This record abundantly establishes the fact that the actual cost of production between the United States Steel Corporation and other large concerns is practically the same, and yet the profits of the Steel Corporation infinitely exceed those of its competitors. The difference between these profits is in the main obtained by advantageous freight rates. This is, in fact, admitted by Judge Gary, and so capable a judge as Julian Kennedy expresses the opinion that the ownership of common carriers gives to the Steel Corporation the power of life and death over all its competitors.

Political Activities

Attention is called to the Steel Corporation's contribution of $10,000 to the Republican national committee in 1904, and to its efforts in support of a protective tariff. The committee says in part:

By agreement among themselves steel manufacturers have often been able to establish and to increase the price in the home market. Such agreements would have been to a great extent abortive had the consumer of such articles been permitted to procure them in an open and competitive market where the price was not determined either by agreement between a number of small manufacturers or by the inordinate power of a single monopoly. In such cases the producer is clearly entitled to the benefit of competition from abroad, competition at home having been restrained or destroyed by the wrongful act of the domestic manufacturer, and any legislation which renders effective the making of such combinations in restraint of trade or the creation of such monopolies is manifestly indefensible. No monopoly and no combination or conspiracy between monopolies limiting output or fixing prices not international in scope could ever seriously affect consumers if the opportunity was still left open to produce at a fair price in some other market not thus manipulated or controlled the commodities affected by such combinations among domestic producers.

Absorption of the Tennessee Company

The absorption of the Tennessee Coal, Iron & Railroad Co. by the Steel Corporation is considered at length. "If Col. Roosevelt believed," says the report, "that this property was purchased at a loss to the Steel Corporation, it could only have been due to an absolute lack of any accurate information with reference to the extent and value of the Tennessee company's holdings." The report asserts that the dominance of the Steel Corporation since the absorption of the Tennessee company is due in no small measure to the sudden, ill-considered, arbitrary fiat of the chief executive. It adds:

If the Steel Corporation could have absorbed the Tennessee Coal & Iron Co. without a semblance of injury to the steel industry or without the violation of existing law, it would not have been necessary for Judge Gary and Mr. Frick, on a special car "rigged" up at midnight, to make that hurried run to Washington or to confer with the president before breakfast. If the merger was in violation of the law it is equally clear that the president had no right to condone or encourage its violation, or to prevent the attorney general from performing his duty, even though the prosperity of a dozen bankers in New York had depended upon it, much less the fate of a single stock broker, whose reckless transactions had involved him in financial disasters.

Bills Presented

Mr. Stanley presented three bills. The first is a bill "to further protect trade and commerce against unlawful restraint and monopoly" and amends the Sherman law by giving numerous definitions and by making provisions of the law more severe. It is provided that if in any suit it shall appear that any combination was entered into in restraint of trade, there shall at once arise a rebuttable presumption that such restraint was or is unreasonable, if the concern in question controls 30 per cent of the business of its kind of manufactured products. The bill also provides that the burden of proof to establish reasonableness of trade shall be upon the party that contends that such restraint is reasonable.

The second bill is to prevent persons engaged in the manufacture of railroad cars, locomotives, railroad rails and structural steel, or in the mining of coal, from becoming directors or other officers or employes of railroads engaged in interstate commerce.

The third bill is to regulate the ownership of common carriers, in making it unlawful for manufacturing concerns to own common carriers.

Congressman Littleton Files a Vigorous Dissenting Report

In opening his statement of his views concerning the results of the investigation of the United States Steel Corporation by the Stanley committee, Hon. Martin W. Littleton (Dem., New York) says:

Before entering on a discussion of the general question, I desire to distinctly dissent from the bill presented by the majority.

The most pretentious bill presented by my Democratic colleagues is one as to parts of which there has been much discussion. The fundamental fault manifest throughout this bill is that it legislates primarily and directly at the size of undustrial units. It preserves the chief fault of the Sherman law, which is the policy of a belated attack after a concern has grown up instead of providing any means of prevention. It fails utterly to confer upon any governmental agency the power to see to it that concerns in restraint of trade do not grow up. It distinctly treats the symptoms and ignores the disease. It does not establish any agency which, through the enforcement of specific statutes, can insist upon those initial safeguards without which all effort to reach the wrong must fail. Under its provision, overcapitalized concerns with the power of holding companies may, without challenge, enter and continue in the field of interstate commerce. The real truth is that the bill is simply a complicated re-arrangement of the rules of evidence and the burden of proof under existing law, without a serious effort to meet and rigidly solve the great industrial problems which have grown up since the existing law was enacted; and even this rearrangement of the rules of evidence is contrary to every notion of English and American jurisprudence. It has been compared with the railroad law requiring railroads, when challenged, to show that their rates are reasonable. It really is a contrast instead of a comparison. A man or a concern may obtain control of 30 per cent of the business in which he or it is engaged by sheer efficiency. He or it may have no way of knowing how much or little trade is restrained or extended because of this. The effects of these acts are as wide and infinite as all the ranges of commerce and business. The effect is external and beyond them. In the case of a railroad the knowledge of the reasonableness is peculiarly in their possession.

In the proposed bill, under section 9, Subdivision C, "restraint of trade" is defined as follows:

"The words 'restraint of trade' mean in restraint in any respect or to any extent of trade or commerce among the several states or with foreign nations."

Under this definition no business could be conducted that is not a restraint of trade, if by restraint of trade is meant restriction of competition. If ten men start in the same

line of business and two of them survive, with the volume of trade of that business increased a hundredfold, they have extended the trade, but they have undoubtedly restricted the competition to the extent of the eight competitors.

The confusion which is perpetuated in this bill between restraint of trade and restraint of competition will cause no end of difficulty. It may be in a given case or in a number of cases that the extension of trade will result only from the limitation of competition. To say that when it shall appear that any concern or combination of concerns is in restraint of trade and that it controls more than 30 per cent of the value of the total quantity of that trade sold to the United States or more than 30 per cent in value of the total quantity sold in that part of the United States to which such concern extends, in such case such concern will be required at the suit of the government to prove that the restraint is reasonable, is to multiply the difficulties.

Co-operation Vs. Old Trade War

We have endeavored, after months spent in patient inquiry, to present the facts concerning the organization and operation of the United States Steel Corporation. We have seen how from the very beginning the tendency has been marked toward the consolidation of competing concerns, and we have the example of the largest industrial company in the world as illustrative of a tendency in all modern industrial life—a tendency which seems to be moving resistlessly toward the substitution of some sort of co-operation in place of the old trade war. It is perfectly clear that the good which may be done by the development of this tendency may be in a great measure nullified by the evils which unchallenged power in the hands of a small group of men would invite. The question is larger than the simple destiny or lifetime of the United States Steel Corporation. The question is much more far-reaching than a simple approval of its good points or an occasional animadversion upon its bad points.

The lesson which this record teaches, if it teaches anything, is that the American government is confronted in the handling of its corporate problems with the most difficult economic and industrial problem of its history—a problem, in the first place, which defies the narrow limitations of partisanship and at once challenges the patriotism and wisdom of men of all parties; a problem, indeed, which is not improved by the dissolution of existing concerns except in so far as that dissolution furnishes a basis for constructive legislation which will prevent the recurrence of the evils and make sure and certain the good which co-operation and organization can do.

Make Attitude Certain

After all, the question which we first meet is, What is to be the attitude of the government toward business—business in its corporate form, business in its large corporate form, business in co-operative corporate form? Must there continue to be a war of extermination on the part of the government met by a policy of evasion and intrigue on the part of business?

The first requisite of any policy which the government may adopt, or any statute which it may enact, is that that policy of that statute will make the government's attitude toward modern forms of industry absolutely certain—an attitude defined and written into its laws through the agencies which have been established by the constitution for writing these laws, and not an attitude growing out of the particular humor or whim of

REMEDIAL LEGISLATION

Recommended by a Majority of the Democratic Members

The control of corporations by the federal government, as recommended by Mr. Carnegie, Judge Gary, and others, is not approved. Whatever may be the evil results of the elimination of competition from the steel business, it does not justify such a remedy and could not be cured by it. Such a control, semi-socialistic in its nature, is beyond the power vested by the constitution in the federal congress.

The abuses mentioned in this report can in a great measure be remedied by giving to the operations of the United States Steel Corporation and other like corporations the widest publicity, and by the strict enforcement of laws specifically inhibiting the employment of cunning devices by which an unfair advantage over competitors is secured. The bureau of corporations possesses the authority to thoroughly investigate the internal affairs of industrial concerns doing an interstate business. Had the character of the Steel Corporation and the nature and extent of its operations been known to the people and to the president of the United States at the time of the absorption of the Tennessee Coal & Iron Co., it is highly improbable that the chief executive would in twenty minutes have given his consent to a merger fraught with infinite injury to the steel industry and to the public alike.

The commissioner of corporations should be required to report to congress as well as to the president of the United States, at such times and upon such conditions as it may prescribe, and the law creating this bureau should be so amended as to make such reports mandatory upon the commissioner of corporations.

The enormous earnings of the Steel Corporation are due not to a degree of integration of efficiency not possessed by its competitors, but to the ownership of ore reserves out of all proportion to its output or requirements and to the control and operation of common carriers, divisions of rates, and the liberal allowances obtained from other concerns through inequitable and inordinate terminal allowances. The business of production and transportation should be absolutely separate and distinct, and no industrial concern should be permitted to own or operate an interstate carrier.

The attorney general of the United States and his subordinates should not be permitted to exercise an absolute discretion as to the institution or proceedings under the act of July 1, 1890, known as the Sherman anti-trust act, or other acts prohibiting combinations in restraint of trade. The parties injuriously affected by such combinations should have access to the courts and the benefit of adequate and sufficient remedies for wrongs inflicted by such combinations.

Bills embodying legislation designed to accomplish this purpose are presented with this report.

Mr. Littleton does not concur in the proposed bill amending the Sherman anti-trust act.

any department of the government or bureau under that department. The certainty of the government's policy will insure respect for its authority on the one hand and create and maintain stability in legitimate business upon the other.

The business device known as a corporation and its almost universal adoption in the business world have made these problems grow much more rapidly than the public understanding of them. The very fact that the grant of a corporate charter comes from the sovereignty of the state made in some measure every corporation organized a large or small problem in the policy of every state. As they combined or extended their operations into other states these problems increased with their endless complications. How to keep them within their corporate charter, how to prevent oppression, how to fix liability, how to insure honest management, how to prevent hurtful over-capitalization, how to prevent combinations of concerns hurtful to commerce, how to keep separate the carrier from the manufacturer, these, at first problems for the state in which the corporation was organized, grew to be problems for every state into which it extended its business; and finally became a great national problem in so far as it was located in the field of interstate commerce.

The advantage of legitimate corporate development is beyond any intelligent question. The true corporation has the advantage of assembling the most experienced and intelligent men to direct its affairs and shoulder its responsibilities. It has the advantage of gathering to itself a little of the wealth of a great number of men without embarrassment to them, which enables it, by reason of the total sum thus gathered, to do big things. It has the advantage of being able to distribute in shares the value of a property or plant or enterprise infinitely. It has the advantage which comes with concentration, the economy of organization, and the combination of the wealth of many. Rightly understood and honestly administered, it represents the co-operative enlightenment of modern business. It stands for the collective energy, intelligence, and wealth of modern industry. It is the most flexible, resourceful, convenient, and effective instrument yet devised by man to bring forth, manufacture, distribute, and market the raw wealth of the earth.

Attempts of the States

Mr. Littleton discusses at some length the laws and constitutional amendments adopted by many states to suppress trusts. He adds:

Notwithstanding these states enjoyed to the full authority of the common law, which for hundreds of years had denounced monopolies, and notwithstanding the fact that their development imperatively called for the employment of centralized capital in convenient corporate form, these states, in order to translate their rage and resentment into an offensive weapon, went far beyond the principles defined and settled by common law and enacted statutes drastic in character, antagonistic in temper, and in many instances largely the product of political wrath rather than the result of wise deliberation, wholly or partially unconstitutional.

Mr. Littleton calls attention to the fact that three states, West Virginia, Delaware, and New Jersey, kept open the door which had been closed by the other states. A corporate franchise can not be forfeited except in the state where the charter is granted, and then only when the laws of that particular state are violated; and as West Virginia, Delaware, and New Jersey passed no anti-trust laws, they could and did grant almost all of the charters to all sorts of enterprises which, when incorporated, proceeded into other states to do business at will. Thus the states which had enacted the most prohibitive laws against all conceivable forms of agreements and arrangements found

RECOMMENDATIONS

By Messrs. Gardner and Danforth, Minority Members of the Committee

(1) CONSTRUCTIVE LEGISLATION.—*All corporations exceeding $50,000,000 in capitalization or valuation must become United States corporations before entering interstate commerce. For smaller corporations United States charters are voluntary.*

All United States corporations must be recapitalized at their actual value.

An Interstate Commission of Industry, like the Interstate Commerce Commission, to be established. Publicity to be provided for.

When the price fixed by a United States corporation has been found to be unreasonable, the Interstate Commission of Industry must publicly declare that fact and recommend a reasonable price.

Interlocking directorates and "holding" companies forbidden except when permitted by Interstate Commission of Industry.

If foregoing recommendations shall prove insufficient to meet the trust problem, the Interstate Commission of Industry ought to be given a carefully guarded power to decree maximum prices when necessary.

(2) PALLIATIVE LEGISLATION.—*Industrial corporations not to own common carriers.*

"Unreasonable restraint of trade" defined and burden of proof of "reasonableness" transferred to the defendant.

Individuals and states to have the opportunity to intervene in government suits.

Extensive powers and instructions for courts when combinations are adjudged illegal.

(3) RECOMMENDATION TO THE UNITED STATES STEEL CORPORATION.—*That in the blast furnaces and rolling mills three shifts of men, working eight hours each, ought to take the place of two shifts of men working twelve hours each.*

Mr. Young (Rep., Mich.) concurs in the above with exceptions as follows: He believes that the Interstate Commerce Commission and the railroad commissions of the several states are clothed with sufficient power to remedy all evils growing out of the ownership of common carriers by industrial corporations. To forbid such ownership would tend to decrease economy and efficiency on the part of the industrials. Furthermore, he is not convinced that the power to fix prices is necessary to the efficiency of federal control.

themselves invaded by alien concerns which they were powerless to attack or dissolve.

Federal Legislation

Mr. Littleton points out that naturally the failure of the states to solve the trust problem was followed by federal legislation. He then discusses the Sherman law and various decisions of the supreme court, including those in the Standard Oil and Tobacco cases. Nobody, he says, is satisfied with present conditions. Continuing, he adds:

With the question in this unsatisfactory condition and the public mind in this unsettled state, and the welfare of our country vitally interested in the right and just settlement of the problem, we are confronted with the specific question as to what step should be taken by the legislative branch of the government to bring political parties upon this industrial question, either as to what the end desired is or the means adequate to reach that end. It is of the utmost importance that the question as a whole should be cut clean loose from the agitation and uncertainities of politics and dealt with upon the bare questions of intrinsic merit. Therefore it is my opinion that the legislative branch of the federal government, in whose hands the question is exclusively lodged, should create a joint body of the senate and the house for the purpose of considering the whole question.

Proposed Committee

This committee should be created without regard to the political affiliations of its members. This would provide a rational, constitutional method of treating the question. The committee should take counsel and advice of organized capital and organized labor. It should consult the interest of every class of citizens and should ascertain as far as possible the effect of legislation upon each class. It should inquire into the experience of other countries in dealing with industrial growth and corporate development, study the measures adopted by these countries, analyze the results of these measures, and profit, as far as possible, by their experience. Its sole aim and object should be sound legislation. This committee should examine carefully all of the judicial interpretations of the various courts of our country of the Sherman law in order to fully understand its judicial history and its judicial growth. The committee should carefully analyze the result of the enforcement of the law, particularly the result as illustrated in the reorganization in the Standard Oil and Tobacco Co. cases—this with a view of determining whether its enforcement has cured the evils denounced by the supreme court in its opinion.

The selection of such a committee would concentrate the energy and ability of the legislative branch of the government upon the solution of this problem. It would focus the attention of the whole country upon the committee and its work and reduce under its impartial and judicial inquiry the agitation of this country to orderly and constitutional treatment.

This committee could draw a line around the field of interstate commerce and consider, first, under what terms and conditions concerns desiring to do interstate business should enter this field, whether by federal license, federal incorporation, federal registration, or federal certification. Second, just how elaborate and exacting these terms and conditions should be. Third, this committee should consider what laws should be enacted to govern concerns in this field of interstate commerce after they had complied with the terms and conditions of their entry. Fourth, the committee could consider the manner in which an offending concern should be excluded from the field of interstate commerce and devise an orderly and constitutional method by which the concern condemned in the eyes of the law should be excluded from this field and wound up.

In fact, such a committee, giving its time, industry and intelligence to the solution of this problem, would insure order in the place of chaos, impartiality in the place of partisan appeal, and judicial temper in the place of political rancor.

Mr. Littleton's Solution

If you should ask me what I, as an individual, think would be a solution of the question, I can give you a general indication of my views, conscious that they fall short of a complete remedy and anxious that they shall be considered only as a suggestive contribution rather than a perfected program.

The real vice in the treatment of the whole problem heretofore has been the attempt to legislate solely against the result or effect of a series of acts instead of specifically defining and prohibiting these acts. In an effort to prevent and punish confess-

FINDINGS OF FACT

By the Minority Members of the Committee

That J. P. Morgan & Co. and the underwriting syndicate received $62,500,000 *for organizing the United States Steel Corporation.*

That the Corporation was capitalized at $1,400,000,000, *of which nearly one-half was "water".*

That the average annual earnings of the Corporation have been from 11 *to* 12 *per cent on the actual value of its assets.*

That the Corporation controls a little over one-half the crude and finished steel business of the United States.

That the average wholesale price of steel products has fallen off since the Corporation was organized.

That the Corporation and all the independents have an understanding as to prices.

That the system of interlocking directorates has insidious consequences and facilitates "inside management" and the stifling of competition.

That the situation as to iron ore supply is grave and may become menacing.

That labor conditions in certain departments of the steel industry are bad.

about its solution. What we stand in need of, what we most desire, is not felicitous phrases, incisive epigrams, or turgid editorials, but a clear pointing out of the steps which can be taken, and which should be taken, which will be effective in reaching a right solution.

The question is one which reaches down through the very vitals of business and commerce to the foundation of the country's prosperity, and its remotest influence finds its way to the very farthest end of the detail of the lives of our people. The thoughtless disturbance of this great and extensive fabric sends a tremor of uncertainty and fear far down to the very ends of human interest and employment. No one man knows enough to know the full and final influence of a change in the established policy of dealing with these concerns. There is no such organized difference of opinion between the political parties as would require the settlement of this question either properly or necessarily as a political adjustment. There is no line of cleavage between

edly conspicuous evils, we have set all business groping and feeling about with uncertain step like a man in the dark. We must first realize that competition is the final law of all life, but that it is a growth, just as co-operation is a growth; that it is the law of trade and barter and not the law of statutes; that no government ever had roots so deep or standards so high as to be able to enforce compulsory competition any more than the mightiest man is able to make the right hand the earnest competitor of the left. It will always exist at one time or another, but it can not be legislated into commerce any more than it can be legislated out of commerce. To be exact, it is not competition which we seek to maintain but the unhindered right to compete. We do not make men go into business to compete with others. We maintain just laws so that if a man chooses to go into business and has the efficiency to win in the contest he shall not be molested in his pursuit. Competition is not a concrete and stationary thing to be preserved. It is an ebbing and flowing tide of industrial life which may run high upon the shores in one period and ebb into the middle of the sea in another.

To change the figure, it may be strangled to death by superior strength unjustly used. It is an ever-changing, ever-diminishing, ever-enlarging condition of industry. It is a state of industrial liberty and economic freedom. It must be free but not by coddling the inefficient or holding everyone back for the laggard. It is bound to mean a reduction in the number of competitors but not a permanent appropriation of the thing competed for. In the hard struggle of industry and business life there must be an elimination of those who are unable to endure it, but this elimination should be solely upon the inability of those eliminated to survive an honest contest waged under the most enlightened rules of business warfare.

Holding Companies

When corporations found that it was necessary and profitable to combine and either turn themselves over to a holding agency or dissolve and unite in one huge corporation, they did it in order to economize in the expense of administration and to enable them to control prices. Whatever the purpose was, the effect in many cases was to give the holding company or the huge corporation the monopoly of the business in which it was engaged. We were confronted then and we are confronted now with the question as to how we should deal with the monopoly, and it is by no means an easy task.

In many of our constitutions and most of our laws we have forbidden the creation of monopolies by the government; that is, we have said that no concern should be granted the exclusive right to do a particular kind of business and, except in the case of allowing exclusive patent rights, we do not grant such rights; but the withholding of such grants by the government has not prevented monopoly.

We have monopolies which have been created by individual ingenuity and effort, and it is this individual ingenuity and effort with which the government must deal in attempting to prevent or regulate monopoly.

Three Kinds of Monopolies

There are monopolies which have been built up by unfair practices employed against competitors, such as the getting of rebates, the use of large amounts of capital to starve out the competitor, the selling below cost to drive a less resourceful competitor out of business, the getting control of the sources of supply of necessary raw material so that no competitor could get it except at prices which would bankrupt him, the advantages of high tariff so that no similar article could be brought from abroad.

Then there is the monopoly which is created in the first instance by the promoter who collects a large sum for the work of putting several or many concerns into one, and this is made possible by the hope of the different owners that they will add to the value of what they have the combination value, and that they will get a larger dividend without the great cost and trouble of maintaining several establishments. This monopoly also offers the attraction of speculation, which to many is a great temptation.

Now, these two classes of monopoly are abnormal and result from the desire of a few people, by fair means or foul, to take a short cut in getting money. They do not represent the efficiency of combination nor do they promise any benefit to the public.

There is still another and third kind of monopoly which presents a much more difficult problem and which must not be confused with the first mentioned two classes. This kind of monopoly is the result of an intelligent organization, skillful combination, and proven efficiency. There can be no doubt that organization when intelligent and systematic; combination when brought about for the purpose of embracing all of the processes from the beginning to the end of the manufactured thing; and proven efficiency in the actual work of production or manufacture, will improve the quality of the thing produced, reduce the cost of production, and cheapen the price to the consumer. Such monopolies, so created, stand for the best that is in our civilization. They represent the survival of the highest efficiency. They are simply the winners in the final contest of competition. Because of all these qualities which they have, all of these advantages which they enjoy, such monopolies in different fields of endeavor may come into exclusive control of the thing which they manufacture or produce. In other words, by organization, combination, and efficiency they may drive all competitors from the field. This leaves them in such unchallenged control that they are able, at least for a time, to do much harm to the public if unrestrained, because the public must go to them and no one else for the thing which they manufacture or produce.

The question presents itself, then, In what way are we to deal with these three clases of monopolies? How are we to treat each? Can we apply the same laws to each?

Make Definite Laws

While they are each created by different methods, varying in their

THE REAL QUESTION

As Stated by Congressman Littleton in His Dissenting Opinion

The real question which engages now and will continue to engage the attention of those in authority is the question of how to preserve centralized industry, which is represented in the great corporate development of the country, and at the same time insure industrial liberty. In order thoroughly to understand and correctly solve this problem, it must be approached without prejudice, without passion, and without bias. In the distinctly commercial era in which we live the energy and ability of our strongest men is devoted to the getting of wealth. More than in any other period of the world's history we have cultivated and enlarged the creative faculties of our race, and while conspicuous instances of oppression, coercion, and wrongdoing have marked the growth and development of this era, it cannot be that simple greed is the single impulse which drives the brains and hands of men to the great task which they have undertaken. It cannot be that the mere love of ownership, the naked lust of gain, is the sole inspiration underneath the great work which men have set themselves to do.

character from strangulation of competitors to simple superiority of work and skill, they each at last come to control the thing manufactured or produced so as to be able to extort from the public an unreasonable price. We can not say we will make it impossible for any one of the three classes to exist, for in doing so we throw away the very fruits of organization, combination, and efficiency. We can not prosecute skill as a crime along with coercion. We can not indict organization as an offense along with conspiracy. We can not punish efficiency as guilt along with oppression.

We must establish some rules which will permit the best that is in our race to develop and yet keep in check the worst that is manifested.

In my opinion, we should make definite laws governing competition. These laws should be specific as far as possible in defining and punishing unfair methods of competition. They should prevent holding companies, secret rebates, underselling for the purpose of driving out competitors, factors' agreements, and exclusive control of raw material, such as ore, coal, or oil; and they should prohibit the combination of corporations producing the same things in the same way for the purpose of controlling prices. They should authorize any person injured or threatened with injury to apply for an injunction to prevent the threatened injury. Competitors should be made by law to play fair, and the means of enforcing this law should be in the hands of every man who is about to be injured by the unfair play. We should so enact these laws as to make it impossible, or well-nigh impossible, for a monopoly of the first two classes named to be built up on unfair practices and foul tactics, and then provide that if by chance one should escape the prevention of these laws and grow up the government would not only prosecute it, but actually destroy it and every vestige of its existence.

Now if, with these laws demanding fair play in competition thoroughly enforced, a concern belonging to the third class should, by intelligent organization, skillful combination, and high efficiency, and without resort to any of the unfair means denounced by law, produce the best and cheapest article and one by one drive all competitors from the field and come into complete control of that field, what shall the government say to that concern? If it should undertake to prohibit the steps taken by the concern, it would be legislating against intelligence, skill, and efficiency. If it should undertake to denounce the concern as a monopoly when it had come into complete control of the field, it would be denouncing the fruits of intelligence, skill, and efficiency. In whatever way the government should undertake to prevent the growth and prosperity of such a concern, it would, after all, be trying to prevent the useful employment of the best that is in the human race.

Challenge Every Concern

It is my belief that the federal government should resolutely challenge every corporate concern seeking entrance into the field of interstate commerce, and compel it to conform to a standard which will insure, first, that the concern has behind every issued share of stock the real value which the share represents, not only for the protection of those who buy the stock, but to insure that it will not lower the standard of its product to force a dividend on excessive capitalization, and thus tend to demoralize the industry in which it is engaged. To do this effectively, both as a security to the public and as a reacting influence upon the policy of the states, the federal government should require corporate concerns entering the field of interstate commerce to submit their status, their true condition, to a board created for that purpose. A report of each company, examined with full and authentic data should be kept, and the rules governing the conduct of the board should be enacted into law by congress and no concern should be allowed to enter the field of interstate commerce until the board had issued a certificate to the effect that the concern had complied with the law governing its admission. The board should not have the slightest discretion as to what classes or kinds of concerns should be admitted, but only the right to say that it had complied with the laws enacted by congress. This certificate issued by the board should contain a statement of the laws governing their admission and should stand for and in the place of a charter entitling the concern to do interstate commerce. It ought to be provided that this certificate should be forfeited for a violation of the conditions of entry, as well as for a violation of any law governing the transaction of interstate commerce or business—this forfeiture to be upon notice and after a hearing. Thus at the very foundation of interstate commerce the federal government would take a good grip upon the instruments and agencies engaged in it, and would hold that grip against the commission of economic wrongs and evils.

We are, of course, confronted with the still more difficult problem as to how to treat the vast number of con-

MAKE COMPETITION FAIR

And Exhorbitant Prices Will Not be Charged, says Mr. Littleton

I think if it were true that monopolistic control did give a permanent power to injure the public, the government would have a perfect right to prevent that injury even by the regulation of prices; but I think those who have reached this conclusion have done so hastily and without considering all of the elements of the situation.

If monopoly is the result solely of intelligent organization, skillful combination, and proven efficiency, and if unfair methods are made unlawful and the means for preventing these methods are made speedily effective, if the unhindered right to compete is preserved in full and the field kept entirely open and the monopoly may not prevent or check the coming of competition, then by the very law and logic of its creation the monopoly must charge reasonable prices and keep up the standard quality of the article; for as it could not have driven competitors from the field except by breaking the law on the one hand, or by the highest efficiency and the lowest prices on the other, it cannot prevent the return of competitors except by breaking the law on the one hand or maintaining the highest efficiency and the lowest prices on the other. And if, in each instance, the law requiring fair play is enforced, the monopoly must keep its control by the same means that it got control —that is, by intelligent organization, skillful combination, and proven efficiency—all within the law governing competition. The moment that a monopoly raises the prices or reduces the quality of its article it invites into a free and open field all of the competitive ability and ingenuity in the country —that very same competitive ability and ingenuity which it drove out of the field.

The point is keeping the field free, protecting competition, making the rules of competition fair. No doubt for a short time the monopoly could reap a harvest of high prices, but with this protected competition its harvest would soon be cut short.

cerns already engaged in interstate commerce. In other words, to make drastic regulations as to all future concerns entering into interstate commerce and leave unregulated and undisciplined those already engaged, which, without restriction, have been allowed to enter into that field, would produce discrimination at once unjust and harmful to the new concerns seeking admission as well as to the commerce of the country. The acts of congress governing the admission of concerns into interstate commerce could be so framed, no doubt, as to require a gradual compliance with them by those concerns already in the field so that the readjustment would make them all equal in the eye of the law, equal in their regulation, and at the same time be accomplished without too sudden a disturbance of those which have entered without challenge.

Congressman Young Differs From His Associates

In presenting his opinion, dissenting from the views of two of his Republican colleagues, Congressman Young, of Michigan, says:

Organization

1. The United States Steel Corporation when organized was greatly over-capitalized, but to a great extent this has been remedied by extensive investment of earnings since its organization.

2. The objects aimed at in the organization of the United States Steel Corporation were:

(a) Greater integration and the consequent increased economy and efficiency in operation and the avoidance of paying profits to outsiders.

(b) Promotion and stock market profits.

(c) Lessening of severe competition.

Railroads

3. The Interstate Commerce Commission and the several state railroad commisions have ample power to correct all practices incident to the ownership of railroads by the corporation which are unfair to competitors or inimical to the general welfare. To claim that it has not such power is to say that it has utterly failed in the purpose for which it was created and given its present extensive powers and to leave little excuse for its further continuance.

4. In some instances the share of the through rate received by the railroads owned by the United States Steel Corporation is so excessive as to call for early action by the Interstate Commerce Commission. It is but just to state, however, that these rates were all inherited by the United States Steel Corporation. That in no instance have they been increased by the United States Steel Corporation, although in some instances they have been lowered by that Corporation, and that the practice denounced is shared by many other manufacturers in many lines of business.

Restraint of Trade

5. Previous to the organization of the United States Steel Corporation several corporations, engaged in the manufacture of plates, structural iron, and wire, some of which subsequently became subsidiaries of the United States Steel Corporation, entered into illegal pooling contracts, fixing prices, and dividing production on a percentage basis. Under these contracts they continued to act after the organization of the United States Steel Corporation, in the case of plate and structural iron agreements, until January 1, 1905, and in the case of the wire agreements until a later date. The plate and structural steel agreements were brought to an end by the direct intervention of Judge Gary. Judge Gary denied any knowledge of the existence of the wire pools, and there is no evidence to the contrary. The circumstances are such, however, as to indicate that some of the officials of the United States Steel Corporation must have been cognizant of these acts.

6. One of the main purposes of the Gary dinners, so-called, was, by creating confidence and friendly relations among the manufactuers of steel, to maintain prices and prevent destructive trade wars.

Monopoly

7. The United States Steel Corporation, outside of the so-called Hill lease, which it has exercised its option to cancel, controls about one-half of the now available iron ore in the Lake Superior district, and not to exceed one-half of the now available iron ore in the Birmingham district. Its ownership or control of iron ore in other portions of this country, or in Cuba, is inconsiderable. It owns a very much smaller proportion of the coking coal of the country than it does of the iron ore, while it produces a little more than half of the steel products of the country. In other words, its acquisition of raw materials has not kept pace with its manufacturing capacity or achievements. Its ownership of now available Lake Superior ores does not exceed forty years' supply at the present rate of consumption, and considering its vast investment in plants is no more than common prudence would dictate it should acquire, and it lacks very much of being a monopoly.

Prices

8. The general tendency of iron and steel products since the organization of the United States Steel Corporation, though they had many fluctuations, has been downward. The average price of steel products since its organization has been lower than during any other like period in our history, except the decade from 1890 to 1900, during which conditions in all industries were abnormally depressed and labor was unemployed. We are of the opinion that the United States Steel Corporation has to some extent steadied prices and prevented wide fluctuations, but that on the other hand prices are as low, and probably lower, than they would have been if this company had never existed.

Tennessee Coal, Iron & Railroad Co.

10. During the height of the panic of 1907, Moore & Schley, bankers and brokers of importance in the city of New York, had among their assets, mainly as collateral for loans, about 150,000 shares of the stock of the Tennessee Coal, Iron & Railroad Co., about 100,000 shares of which they had rehypothecated with various bankers as a part of the collateral for their own indebtedness, which amounted to about $38,000,000, nearly all of which had come due. The stock was uncurrent and not deemed good collateral, especially in times of panic. Moore & Schley caused the United States Steel Corporation to be approached with a view to a sale of the stock of the Tennessee Coal, Iron & Railroad Co., in order to relieve their own situation.

11. There is not the slightest evidence that there was any attempt by the United States Steel Corporation, or J. P. Morgan & Co., or anyone else to depress Tennessee Coal, Iron & Railroad Co. stock in the market or to embarrass its owners, Moore & Schley, so as to buy the stock cheap. On the contrary, the evidence shows conclusively that all of the business interests of New York city were working unselfishly and patriotically to stem the tide of the panic and financial disaster that was sweeping over the country.

12. The failure of Moore & Schley at the time would probably have resulted in many other failures and in greatly aggravating the panic and spreading loss and suffering among millions of our people.

13. Moore & Schley would probably have failed but for the relief offered by the sale of the Tennessee Coal, Iron & Railroad Co. stock. No other practicable means of saving them was proposed by themselves or anyone else. Judge Gary, on the part of the United States Steel Corporation, offered a loan of $5,000,000, and this was rejected by Mr. Schley as wholly inadequate.

14. Messrs. Frick and Gary made frank and truthful statements to President Roosevelt of the material facts of the case.

15. The steps taken by President Roosevelt in the matter were inspired by patriotic motives. They gave the United States Steel Corporation no additional rights and granted

them no immunity from civil or criminal prosecution should it later appear that they had in any way violated the law.

16. The effect of the sale of the Tennessee Coal, Iron & Railroad Co. stock was to place over $12,000,000 in Moore & Schley's hands to enable them to reduce their loans with the banks from $35,000,000 to $23,000,000, to turn their assets into cash, to add $3,600,000 to their reserves, and to render them impregnable. It was one of the most important steps in allaying the panic.

17. The United States Steel Corporation was not over-anxious to buy the stock of the Tennessee Coal, Iron & Railroad Co. Those who engineered the sale on the part of the Tennessee Coal, Iron & Railroad Co. demanded and obtained the agreement that all the stockholders should have the option to sell at the same price. All the stockholders availed themselves of the option, showing that they thought the price reasonable. Full value was paid for the stock, and it has not so far proven a very profitable purchase.

18. Its purchase did not give the United States Steel Corporation, through the ownership of raw materials or otherwise, a monopoly of the iron and steel business of the whole or any portion of the south.

Sterling Favors Dissolution, Opposes Fixing Prices

I do not concur in all the recommendations of the minority nor in all the views therein expressed.

I heartily favor governmental regulation of corporations engaged in interstate commerce. The first step in this direction is legislation providing for federal incorporation. Such legislation should limit the capitalization to the actual value of the corporate property and thus eliminate from the commerce of the country that abominable fiction of values commonly termed "watered stock".

The extent to which fictitious values have been created by over-capitalization of corporate property has shaken public confidence in corporate securities and made the public mind distrustful of large business enterprises. This policy has cheated both the investor and the consumer. The investor has purchased stock under the mistaken belief that the face had some relation to the value. The consumer of corporate products has come to feel, and with much justification, that he has been made to pay exorbitant profits to over-capitalized corporations that they might pay dividends on fictitious stock values.

Such legislation should provide for a system of reports, to a commission or other government agency, giving full publicity to the manner and purpose of the organization, its methods of doing business, and its profits. It should provide for rigid supervision of all issues of securities and prohibit one corporation from holding stock in another, and limit the extent to which two or more corporations may have common directorates.

I do not concur in the view of the minority that the true remedy for industrial evils does not lie in the dissolution of industrial trusts. I am of the opinion that the dissolution of the great industrial combinations into their integral parts would do much to restore trade to a natural and healthy condition and inspire confidence of the people in the business situation and revive commercial prosperity.

The proposition that the government shall recognize and permit to exist trusts, monopolies and combinations in restraint of trade and then regulate them by legislative control, is one calculated to suppress individual enterprise and destroy competition. From such a recommendation I unhesitatingly dissent. It is conceded that such a policy would result necessarily in the fixing of prices of the products of such combinations by law. If government undertakes to do that, where will be the end? If government fixes the price of the finished product, must it not also fix the price of the raw material and of the labor that converts it?

If government undertakes to fix the price of labor, must it not also, in the ultimate analysis, fix the price of those things which sustain the laborer, such as food, clothing, and shelter? Such a condition, to my mind, would be subversive of the principles of free institutions and free men.

It is urged that large industrial combinations can produce more cheaply than small ones. This is a fundamental fallacy, from which proceeds the paternalistic doctrine that government shall recognize and permit monopolistic combinations and fix the price of their product. Competition is certainly more conducive to progress than is monopoly. Its very essence is improved methods, better machinery, greater skill, and hence more economic production. Its beneficence does not stop at cheaper production and cheaper distribution.

In its very nature it prevents exorbitant profits and compels capital to be satisfied with a fair return.

The federal government by proper legislation can resolve great combinations into their integral parts, and then by wise and just regulation of corporate powers maintain a natural and healthy condition of trade. It is plainly its duty to do so.

WOULD SET ASIDE

Proceedings to Foreclose Mortgage on Allis-Chalmers Co.

Milwaukee, Aug. 6. — Petitions to have set aside the proceedings to foreclose the $15,000,000 mortgage on the properties of the Allis-Chalmers Co., of Milwaukee, have been taken under advisement by Judge Ferdinand A. Geiger, of the United States court, eastern district of Wisconsin, Milwaukee.

The petitions are brought by Nathan Eisenmann, of Boston, owning 800 shares of preferred and $50,000 worth of first mortgage bonds; William H. Timlin, justice of the supreme court of Wisconsin, and Walter L. Gold, Milwaukee, owning together 14 first mortgage bonds of $1,000 each. The petitioners claim they are acting in behalf of all share and bond holders similarly situated.

The foreclosure proceedings were begun recently by the Continental Commercial Trust & Savings Co., of Chicago, against the Allis-Chalmers Co. and Otto H. Falk and D. W. Call, receivers. Mr. Call has withdrawn as a receiver and Gen. Falk is now sole receiver.

Mr. Eisemann's petition makes sensational allegations and brands the foreclosure proceedings as a "fraudulent and collusive" scheme instituted in behalf of certain persons who desire to reorganize the company for their own profit and to deprive other bondholders and shareholders of their just dues.

The Eisemann petition asserts that the Allis-Chalmers company has plenty of money with which to pay the interest on the mortgage, and to meet the payment last January. There is no excuse why the payment was not made, declared Eisemann. He sets forth that the foreclosure is wholly unnecessary. Last Dec. 31, he says, the company had $931,470 cash on hand, according to President Call's sworn statement. On March 22, the cash on hand had increased to $1,116,909, according to President Call's sworn statement.

Hearings Adjourned.—The hearings before the Interstate Commerce Commission of the complaint of the Youngstown Sheet & Tube Co., Youngstown, O., in connection with freight rates charged by the railroads operating in the Youngstown district, have been indefinitely adjourned. They were held in New York. Examiner Garry will submit to the commission, the question of when the hearings will be resumed.

RAPID DECLINE

In Price of a Valuable Alloy—Greater Use of Vanadium Expected.

Notwithstanding the increasing demand and widened use of vanadium in the making of special steels, the greater part of the supply for the United States and a very large part of the world's supply are controlled by two American companies. The American Vanadium Co., of Pittsburgh, controls the extensive and high grade deposits of vanadium sulphide (patronite) in Peru, and the Primos Chemical Co., of Delaware county, Pa., operating the extensive but low grade deposits of vanadiferous sandstone (roscoelite) in San Miguel county, Colo. Numerous other companies have been formed in the past three or four years to treat the lead vanadate (vanadinite) ores from Arizona, New Mexico and Mexico, but at the present time there is not one of these engaged in the mining and treating of vanadinite, although some vanadinite ore is produced incidentally to other mining and marketed mostly in Europe. The shipment of the high grade roscoelite from Colorado to Europe is an incidental and limited feature of the vanadium mining business. At least one new company is planning to engage in the mining and treating of the Colorado vanadiferous sandstone. During the past year, a small amount of vanadium, has become available from the deposits of carnotite, a vanadium-uranium compound found widely scattered in small deposits of many hundreds of square miles in western Colorado and central Utah. The product of most interest and value in this mineral is the uranium, which is in growing demand as a source of radium. The vanadium incidentally recovered from this ore is considerable, but not enough to change the general status of the business in any way. Some of this carnotite ore is treated at Pittsburgh by the Standard Chemical Co., a concern related to the American Vanadium Co., but most of it is shipped to Europe.

Under the influences of competition and improved metallurgical practice, the price of ferro-vanadium, the product of which goes to the steel makers, has in two years fallen from $5 per pound for the metallic vanadium content to the ferro-vanadium to $2.50 to $2.25 per pound. Further reductions are not in sight, but a consideration of the conditions of ore supply and improved treatment methods seems to point to still cheaper vanadium. Certainly a material cheapening of this unique and valuable alloy would lead to a very much larger use of it in the steel industry and the producers of vanadium would find still greater profits from their increased trade with lower prices than are now enjoyed.

The Colorado deposits are certainly very extensive and the Peruvian source is claimed to be "inexhaustible." The mining is not expensive and the treatment is susceptible of the application of greatly cheaper methods with enlarged operations. These conditions should lead to the early reduction in cost of the vanadium so essential in certain lines of the steel industry.

SHOWS DECREASE

Inland Steel Report Given For Fiscal Year.

The annual report of the Inland Steel Co., Chicago, for the twelve months ending June 30 last, makes the following showing on the earnings account:

	1912.	Decreases.
Net earnings	$1,230,702	$567,736
Other income	1,394	588
Total income	$1,232,096	$568,324
Depreciation, etc.	195,055	6,740
Net profits	$1,037,041	$561,584
Interest	150,750	9,000
Balance	$886,291	$552,584
Dividends	682,131	*87,786
Surplus	$204,160	$640,370

The previous surplus amounted to $3,372,947, making a total surplus of $3,781,493.

*Increase.

The condensed balance sheet shows the following:

Assets—	1912.	Increases.
Land, plants, bldgs...	$10,713.339	$1,458,746
Inventories	2,360,849	* 6,402
Bills, accts. receivable.	1,083,696	* 17,023
Insurance unexpired...	4,840	1,826
Cash	491,207	* 288,712
Deferred charges	8,162	* 420
Total	$14.662,101	$1,148,019
Liabilities—		
Capital stock	$7,157,170	$840,349
Bonded debt	2,400,000	* 150,000
Accts. payable	381,905	* 146,065
Payrolls	127,704	* 9,484
Special deposits	8,415	* 13,887
Taxes, int. accrd.	69.619	1,825
Reserves	735.795	216,733
Surplus	†3,781,493	408,548
Total	$14,662,101	$1,148,019

†After adding the premium on capital stock paid for $204,386.

*Decreases.

Iron and limestone property consisting of about 8,000 acres, including the old Catawba furnace, located in Botetourt county, Virginia, has been purchased by the Lancaster, Ireland, syndicate, which owns the Piedmont manganese mines of the Chesapeake & Ohio railway, six miles east of Lynchburg.

TO RESUME HEARINGS

In Steel Corporation Suit At Pittsburgh, Sept. 23.

The hearings in the suit of the government for the dissolution of the United States Steel Corporation will be resumed on Sept. 23, in Pittsburgh.

The hearings in Pittsburgh will last about two or three weeks. After that, it is proposed to conduct examination of witnesses in Cleveland, Washington and Chicago, before again returning to New York City. It is believed that the hearings in Cleveland, Chicago and Washington will occupy from two to three weeks in each city.

Following the government's taking of testimony, further hearings will be held in which the Steel Corporation's counsel will examine its own witnesses, with the government doing its own cross-examining.

The government has entered for record a great deal of documentary evidence, since the open hearings came to an end in June, which, it claims, will have an important bearing on the outcome of the suit. Considerable of the evidence is said to be of a nature calculated to offset statements which were made in the hearings by witnesses favorable to the Steel Corporation.

Completing Furnaces

Two new open hearth furnaces which are under construction at the plant of the Lackawanna Steel Co., Buffalo, are now practically completed although the finishing touches upon the work is being somewhat delayed by the scarcity of labor. These furnaces will probably be put into commission within the coming month. The company now has six of its seven blast furnaces in operation and its finishing mills are running full.

At Receiver's Sale.—The plants of the Cincinnati Screw & Tap Co. and the Victor Stamping Co., at Twightwee, near Loveland, O., were sold at a receiver's sale recently. Enough was realized to pay all outstanding debts in full. These two plants, which are inter-related, went into the hands of a receiver about three months ago, and have been idle since that time. The liabilities were then estimated at about $120,000. The property includes two one-story buildings, 80 x 260 feet, 17 brick residences for workmen, and 24 acres of land.

MEN OF THE IRON TRADE

Dabney H. Maury, formerly a consulting engineer at Peoria, Ill., has moved his offices to 1137-1138 Monadnock block, Chicago. Mr. Maury specializes in water supply, lighting and power plants.

Maurice C. Tomkins, who has been sales engineer of the Portland Iron & Steel Co., Portland, Me., for several years, has been appointed representative in New England of the Ohio Ceramic Engineering Co., Cleveland. He will be located at 201 Devonshire street, Boston.

H. C. Burd has been appointed assistant to the sales manager of the Standard Underground Cable Co. of Canada, Ltd., with offices at Hamilton, Ont. He has been at the New York office of the Standard Underground Cable Co. as sales engineer, for some time.

George F. Comstock, metallographist with the Park works of the Crucible Steel Co., Pittsburgh, has resigned to take charge of the new physical testing laboratory recently erected at a cost of $10,000 by the Titanium Alloys Mfg. Co., at Niagara Falls, N. Y.

A. B. Hall, of the National Lead Co., is now acting as leading executive officer of the New York Metal Exchange. He succeeded to that office following the resignation as president of James E. Pope, of the Pope Metals Co. Mr. Hall has been serving as vice president.

James S. Morrison has been placed in charge of the recently opened office of the Taylor Iron & Steel Co., High Bridge, N. J., at 301 Oliver building, Pittsburgh. The increased demand for Tisco manganese steel castings in that territory necessitated the opening of the office.

J. H. McLean, vice president of the Duluth & Iron Range railroad, and George D. Swift, assistant secretary of the Minnesota Iron Co., Duluth, Minn., were at Two Harbors, Minn., recently on an inspection tour in connection with the iron company's interests.

William H. Marsh, who has been superintendent of construction for the Standard Underground Cable Co., Pittsburgh, for the past ten years, has been appointed secretary, assistant treasurer and sales manager of the Standard Underground Cable Co. of Canada, Ltd., with headquarters at Hamilton, Ont.

T. R. Deacon, president and general manager of the Manitoba Bridge & Iron Works, Ltd., Winnipeg, Can., recently visited the works of the American Bridge Co., at Gary, Ind. He was accompanied by H. A. McKay, chief engineer of the Manitoba company.

D. B. Forestal, vice president of the Iron Mountain Mining Co., Duluth, Minn., is in charge of sinking the shaft on the company's property on the Cuyuna range. He has been supervising the drilling and development work. A party of shareholders

JOHN C. JAY JR.

He Became Acting General Manager of Sales of the Pennsylvania Steel Co., Aug. 1 with Headquarters at Philadelphia. He had been New York District Sales Manager of the Company.

of the company inspected the property a few days ago.

R. L. Sites, formerly assistant to the president of the William J. Oliver Mfg. Co., has opened a manufacturers' agency at 50 Church street, New York, in connection with the Lines-Flynn Co. Mr. Sites has secured the agency in that territory for the dump cars, industrial cars and mining equipment of the Oliver company.

Sir Lyman Melvil Jones, president of the Massey-Harris Co., Toronto, Can., is president of the newly-formed league for promoting trade between Canada and France. The society, which is known as the Canadian-French Trade Development Committee, will work in conjunction with a similar organization in France.

W. J. Wallis has been re-elected president and general manager of the Youngstown Foundry & Machine Co., Youngstown, O. Other officers re-elected at the recent annual meeting of the directors were Frank A. Williams, vice president and general sales manager; B. G. Parker, secretary and treasurer.

Robert W. Grange has been made vice president and general manager of the Chicago division of the Thompson-Starrett Co., New York. W. T. Grange has been made manager of the Pittsburgh division and Robert McKallip, of McKallip Bros., Pittsburgh, has been made outside superintendent of the Pittsburgh division.

Byron T. Gifford, formerly connected with the Central Station Engineering Co., Chicago, has been appointed manager of the engineering department of the American District Steam Co., North Tonawanda, N. Y. This department was recently organized. Mr. Gifford's offices will be in the First National Bank building, Chicago.

John D. Isaacs, consulting engineer of the Harriman lines, has been given direct supervision of the inspection and testing departments. The Harriman lines have determined to increase the efficiency of the inspection of purchases and have abolished the inspection and testing departments, placing the work in charge of the engineering department.

Major J. A. Currie, Toronto, Can., was re-elected president of the board of directors of the Imperial Steel & Wire Co., Collingwood, Ont., at the recent annual meeting. Other directors of the company are S. H. Lindsay and J. T. Duguid, vice presidents; Dr. D. McKay, secretary-treasurer; W. H. Whipps, George Royal and C. L. Currie, all of Collingwood.

Charles H. Schaffer, of Marquette, Mich., was the principal speaker at a banquet given at Wells, Mich., last week, to commemorate the blowing in of the new charcoal iron furnace of the Stephenson Charcoal Iron Co., Marquette. Mr. Schaffer is president of the company; Grant T. Stephen-

MEN OF THE IRON TRADE

son, vice president, and J. R. Van Evera, secretary and treasurer.

James T. McCleary, secretary of the American Iron and Steel Institute, is absent from his post on a several weeks vacation, which is being spent at several points and will wind up with a visit at his old home in Minnesota. He will return to New York about the middle of August.

L. R. Clausen, superintendent of the Chicago and Milwaukee division of the Chicago, Milwaukee & St. Paul railway and associated with the railway's operating department for ten years, has resigned to accept the position of general manager of the Moline Plow Co., Moline, Ill. Mr. Clausen is a graduate of the electrical engineering department of the University of Wisconsin.

Captain John Trebilcock, who has been in charge of the underground work at the Hard Ore properties of the Oliver Iron Mining Co., for some time, has been placed in charge of the underground work at the company's Hematite mine. He succeeds Captain Samuel Jewell, who resigned to accept the assistant superintendency of the Breitung estate mines on the Marquette range.

James Buchannan Brady, vice president of the Standard Steel Car Co., president of the Independent Pneumatic Tube Co., vice president of Manning, Maxwell & Moore, Inc., and interested in other industrial companies, is again a patient in the Johns Hopkins hospital, Baltimore, suffering from intestinal trouble. This is the third time that Mr. Brady has recently gone to this hospital for treatment.

H. M. Jewett, of the Paige Detroit Motor Car Co., has been made president of the Lozier Motor Co., Plattsburg, N. Y., succeeding H. A. Lozier, resigned. Other changes in the offices of the Lozier company are the election of Raymond P. Fosdick, former city commissioner of accounts of New York, as vice president and treasurer, and the addition of E. P. Earle and H. E. Kahler, of New York, to the board of directors.

W. W. Near, of the Page-Hersey Iron Works, Toronto, is president of the board of directors of the National Tube Co., Winnipeg, Can. The company recently deposited $50,000 with the city authorities of Winnipeg with which a site for a plant is to be purchased. Other directors of the company are vice president, Sir H. M. Pellat, Toronto; W. W. Butler, vice president of the Canada Car & Foundry Co., Montreal; G. E. Schofield, Toronto, and D. H. Freedman, Albany, N. Y.

Charles H. Hawes, of Duluth, has been appointed mine rescue engineer, a position newly created by the Oliver Iron Mining Co. The appointment is in line with the company's efforts to reduce the number of mining casualties. Mr. Hawes will maintain a general supervision over the rescue stations at each of the company's mines, inspect equipment and conduct drills and demonstrations. The Oliver company has recently created rescue corps among each shift of miners and has provided the rescue stations with all possible devices.

Charles F. Uebelacker, Charles N. Black and William von Phul have been admitted to partnership with the engineering firm of Ford, Bacon & Davis, 115 Broadway, New York. Mr. Uebelacker was formerly chief engineer of the Brush Mfg. Co., Cleveland, and later held the same position with the Peckman Truck Co., Kingston, N. Y. Mr. Black has been superintendent of the Brush Mfg. Co. and later manager of the New Haven works of the Westinghouse Electric & Mfg. Co., Pittsburgh. Mr. von Phul has been associated with the Cincinnati Gas & Electric Co., Cincinnati.

S. S. Rumsey, Duluth; A. M. Gow, Duluth; Mr. Gridley, Duluth; Mr. Morcom, Ely; Mr. Prisk, Ely; John Tresider, Coleraine; James William, Virginia; Richard Trevarthern, Eveleth; R. C. Knight, Eveleth; H. W. Overpeck, Virginia; Mr. Hopper, Iron Mountain, Mich.; Mr. Pascot, Iron Mountain, Mich.; Mr. Murphy, Marquette; W. A. Cole, Ironwood; Mr. Eplett, Ironwood; Richard Pascoe, Bessemer; Malcolm McLead, Chisholm; W. N. Rowe and Thomas Weekly, Hibbing, and T. C. Williams, of North Freedom, Wis., form the party of 20 master mechanics of the Oliver Iron Mining Co., who are now touring the company's mining properties on the Mesabi, Marquette, Menominee, Gogebic and Vermillion ranges. A special train has been placed at their convenience and a thorough inspection is being made of the ranges, as well as the ore docks and new steel plant at Duluth.

Hugh Kennedy, vice president and general manager of the Rogers-Brown Iron Co., Buffalo, N. Y., is on a tour of inspection of the company's properties on the Mesabi range, among them the Susquehanna mine, near Hibbing. This mine will join the producing class this season, following two years of stripping. "The iron and steel business is looking much better," Mr. Kennedy says in a Duluth dispatch. "The business interests of the country are discounting politics to some extent, and probably will to a greater degree before election, and it looks as if business and industry are going to continue to expand regardless of the probable choice of the people for president."

President Charles M. Schwab, of the Bethlehem Steel Corporation, South Bethlehem, Pa., sees increasing prosperity in store for the steel industry. In a characteristically optimistic interview, Mr. Schwab says: "The plants of the Bethlehem Steel Corporation are operating to full capacity. We have been compelled to decline a great amount of business, owing to the congested condition of the mills. In certain products we have sufficient business on the books to assure activity until February or March, of next year. Of course a large percentage of the tonnage on the books of the steel companies was taken at very low prices, and it will be several months before this low-priced material can be worked off the books. But in the last quarter of the current year the margin of profit on steel delivered will be much wider than it is at present. Large premiums are being paid for certain steel products, but the mills are so congested as to make it impossible to take advantage of much business calling for prompt delivery. Business conditions all over the country appear to be sound, and there is no reason why the improvement should not continue. Excellent crop reports of course have done more toward restoring confidence than anything else."

COKE COMPLAINT

Will Be Argued Soon—Reasons Advanced for Rate Reduction.

An early day will probably be set by the Interstate Commerce commission for arguments in the complaint of the independent coke producers of Connellsville, Pa., against the Baltimore & Ohio, Pennsylvania lines, Pittsburgh & Lake Erie and other carriers engaged in the transportation of their commodity east and west.

The brief in behalf of the complainants has been submitted by Wade H. Ellis. In it he challenges the rates on furnace coke—the only one in effect now — on two general grounds, namely, that they are unjust and unreasonable in and of themselves and that in nearly every instance they are discriminatory against Connellsville in favor of the coke ovens in the Fairmont, Pocahontas, Kanawha and the New River districts of West Virginia and the Appalachian district of Virginia.

Seven Allegations

He argues that abundant evidence has been presented to the commission to show the unjustifiable character of the rates. He submits that in seven ways their illegal character has been shown:

First. The rates are shown to be unjust by comparison of the ton-mile earnings, the train-mile earnings and the car-mile earnings with the earnings from all freight. They are higher than the earnings from all freight.

Second. They are higher than the earnings from coal to the same points, and the testimony shows that the expense of carrying coke is very little if any more than for carrying coal.

Third. The coke rates are shown to be unjust in comparison with the coke rates voluntarily established by the same carriers, or carriers with whom they join in making rates on coke from other fields.

Fourth. They are shown to be unreasonably high in comparison with rates maintained by the defendants on gas-house and by-product coke, commodities identical in character with the Connellsville coke, although handled at greater expense because of the smaller volume and the lighter loading of the car.

Fifth. The rates are unreasonable in view of the fact that although the facilities for handling traffic have tremendously increased in the past ten years and the expense per unit decreased to a very large extent, yet the coke rates today are considerably higher than they were ten years ago.

Sixth. The coke rates are shown to be out of all proportion to the cost of performing the service.

Seventh. It is shown that by agreement among the railroads, the Connellsville region has been discriminated against in its coke rates in practically every instance in favor of other competing districts.

Allege Imposition

The commission, in making its order a little more than a year ago requiring the railroads to have only one rate on coke, instead of two based on use to which the coke was put, had no idea that from 90 to 95 per cent of it was used for furnace purposes. It could not, therefore, know when, in technical obedience with its order, the railroads reduced the foundry coke rate from $2.65 to $2.50 and increased the furnace rate from $2.35 to $2.50 it was really increasing rates. The complainants have contended that the carriers imposed upon the commission and the commission has never resented the imputation. That is why there is likely to be an argument at an early date and a disposition of the case without much delay.

OBITUARIES

Robert M. Sunliffe, a retired iron and metal dealer of Philadelphia, died unexpectedly at his home in that city, recently, aged 66. Mr. Cunliffe was seized with an attack of heart trouble and expired within a few minutes. Until about six years ago, he was engaged in the foundry business and conducted a large plant at Eleventh street and Washington avenue, Philadelphia.

Barton H. Burr, president and general manager of the Belfont Iron Works Co., Ironton, O., and president of the Ashland Steel Co., Inc., Ashland, Ky., died Aug. 2, of typhoid fever, at his home in Ironton. He was 77 years of age. He was formerly secretary of the Ashland Steel Co., succeeding to the presidency upon the death of President I. A. Kelly, one year ago.

Mr. Burr was born in Madison, Lake county, Ohio, on Feb. 2, 1835. He went to Ironton at the age of 18, and worked in various charcoal furnaces in Lawrence and Vinton counties for ten years. In 1866, he became shipping clerk of the Belfont company, and filled in turn almost every position in the company. He was also connected with the Belfont Nail Works Co.

STANLEY'S VIEWS

Not in Harmony With Action of Judiciary Committee of House.

The judiciary committee of the house is not likely to approve the recommendation of the majority of the Stanley committee, indorsed by the minority except Mr. Young, that industrial concerns be prohibited from owning common carriers. Such action would be inconsistent with the recent vote of the committee to favorably report the bill introduced by Representative Borland, of Missouri, extending the jurisdiction of the circuit courts so as to enable them to review negative orders of the Interstate Commerce Commission denying the relief prayed by shippers.

That bill was favorably reported because of the pressure brought to bear by the lumber company "tap lines", which are now hanging between heaven and earth because the commission has condemned their divisions of "through rates" made in connection with trunk lines as savoring of rebates, and has couched its condemnation in such a way that they cannot get into court since the supreme court decided the Procter & Gamble and related cases. In those cases the supreme court decided that the aggrieved shipper, who cannot get from the commission the relief to which he thinks he is entitled, has no standing in court because the act conferring jurisdiction on the commerce court, which is the circuit court assigned to try commerce cases, did not grant such jurisdiction.

In that bill the judiciary committee is trying to preserve the union that now exists between industrial corporations and the short lines of railroad owned by common carrier corporations that are controlled by the industries they serve. The Stanley committee, looking at the abuses charged against the United States Steel Corporation, recommended a complete divorce between industries and the common carriers that serve them. It had no concrete cases with which to deal, so it could easily make its recommendation taking only such facts as to abuses as have been developed by the Interstate Commerce commission as a foundation.

Iron Mines Sold.—The iron mines situated in East Hull township, near Ottawa, owned by the late E. A. C. Pew, were sold by the sheriff recently, to Hon. R. W. Scott, of Ottawa, for $5,000, who held a mortgage on the property and who intends to resell them.

BOOM IN PIG IRON

British Product Brings Highest Price in Some Years.

Office of THE IRON TRADE REVIEW,
Prince's Chambers, Corporation St.,
Birmingham, Eng., July 27.

Pig Iron.—The trade boom has increased during the week, with a marked rise in price. The selling figure for warrants on Tuesday rose to 58s 3d ($14.26), whereas at the end of February they could be got for 49s 9d ($12.18). This is the highest price realized for years, and while it is partly due to speculation it is mainly attributable to a strong and healthy demand. Cleveland stocks are being heavily drawn upon, and it is believed that the selling figure will reach 60s ($14.78) before the end of the year. There is increasing anxiety among consumers to cover their requirements for the autumn, in view of the rise which invariably takes place in that period of the year. The iron in stock has been reduced 12,000 tons the past month and 300,000 tons in about 11 months. There is a great scarcity of forge pig iron. The necessity for more material has become so imperative that five other Cleveland furnaces are to be put in blast, which will make the total number in operation 81. The supply of hematite is increasing, and production is far surpassing all records. It would be still greater if sufficient coke were obtainable. With a tremendous demand for new ships, and a consequent record output of steel plates and angles, the hematite demand must continue for some time. Outside Cleveland there are no pig iron stocks, except a small amount at Barrow, hardly worth considering.

Finished Material.—In the finished department, the extraordinary demand is stimulating makers to push forward production to their utmost capacity, and, wherever possible, plant is being increased. Scottish steelmakers at several establishments are extending. The British makers are booked many months forward. High carbon billets are so much in demand that prices have been advanced 10s per ton, making the selling figure £6 17s 6d to £7. All the mills are being pressed for delivery, but, for the present, makers are content to maintain their quotations for Bessemer billets at about £6. There have been rumors of the pending withdrawal of German bounties on export steel, and, if this is correct, it can hardly fail to give a strong stimulus to British prices. At Sheffield, the heavy firms are producing at high pressure for big liners and warships.

ORE MOVEMENT

For July Sets New Record—Approaching 1910 Figure.

July gave evidence of what the lake fleet is capable of doing. Notwithstanding shortage of cars, vicissitudes of weather and numerous unforeseen troubles, the fleet broke the June record easily. The movement reached 7,600,283 tons as against 7,567,555 tons for June, and it was practically all handled in contract vessels. Wild carriers got very little of it, shippers having about all they could do to keep contract vessels busy. The movement to Aug. 1 totals 21,290,904 tons as against 14,064,291 tons for August, 1911. The summary by ports follows:

Port	July, 1911.	July, 1912.
Escanaba	644,098	836,346
Marquette	309,438	513,924
Ashland	439,843	771,057
Superior	1,747,364	2,324,324
Duluth	1,108,316	1,543,324
Two Harbors	972,314	1,616,258
Total	5,221,373	7,600,233
1912 increase		2,378,860

Port	To Aug. 1, 1911.	To Aug. 1, 1912.
Escanaba	1,711,806	2,478,294
Marquette	843,177	1,433,814
Ashland	1,102,263	2,133,858
Superior	4,698,855	6,668,655
Duluth	7,158,450	4,385,802
Two Harbors	2,549,740	4,223,481
Total	14,064,291	21,290,904
1912 increase		7,226,613

Largest Order for Cranes Ever Taken

The Morgan Engineering Co., Alliance, O., has recently taken a number of important orders, the most important being the entire order for cranes from the Minnesota Steel Co., for its new plant at Duluth. This order in money value, understood to be fully half a million dollars, is the largest single order for cranes ever taken in the United States. The cranes are all of large capacity, long spans and very rigid specifications. They are as follows:

Two 150-ton ladle cranes, 57-foot 8-inch span.
One 90-ton ladle crane, 61-foot 7-inch span.
One 75-ton 4-motor crane, 74-foot 9½-inch span.
One 75-ton 4-motor crane, 81-foot 5½-inch span.
One 100-ton 4-motor crane, 74-foot 9½-inch span.
One 75-ton 4-motor crane, 69-foot 5¼-inch span.
One 125-ton 4-motor crane, 73-foot 9-inch span.
One 25-ton 4-motor crane, 96-foot 7½-inch span.
One 10-ton 4-motor crane, 47-foot 7½-inch span.
Two 10-ton 3-motor cranes, 107-foot 5-inch span.
Three 20-ton 5-motor (double trolley) cranes, 95-foot 6-inch span.
Three 20-ton 4-motor cranes (double hoist), 114-foot 10½-inch span.
Two 10-ton 3-motor cranes (magnet), 75-foot 11½-inch span.
Two 10-ton 4-motor cranes (bucket), 67-foot 6-inch span.
One 50-ton 4-motor crane, 105-foot span.
One 150-ton stripper crane, 89-foot 1-inch span.
Two floor charges.
One 7½-ton soaking pit, 89-foot 1-inch span.

The above order was received on July 26. In addition to it, the company received the following orders in the month of July:

From Alan Wood Iron & Steel Co., Conshohocken, Pa.

Two 84-inch plate mills and four tilting tables and one 10-ton special ingot and mold handling machine.

Page Hersey Iron Tube & Lead Co., Toronto, Can.

One 5-ton, 3-motor crane, span 74 feet 3½ inches.

Trumbull Steel Co., Warren, O., the following cranes:

One 25-ton, 3-motor crane, span, 60 feet.
One 10-ton, 3-motor crane, span, 40 feet.
One 20-ton, 4-motor crane, span, 75 feet.
One 5-ton, 3-motor crane, span, 60 feet.

Buckeye Steel Casting Co., Columbus, O.

One 4-motor high type floor charging machine.

Massillon Iron & Steel Co., Massillon, O.

One 5-ton 3-motor Gantry crane, span, 60 feet.

United Steel Co., Canton, O.

Two 10-ton, 3-motor cranes, span, 78 feet.
One 10-ton, 3-motor crane, span, 58 feet.

Woodward Iron Co., Birmingham, Ala.

Two 10-ton, 3-motor double hoist cranes, span, 57 feet 10 inches.

Union Steel Casting Co., Pittsburgh, Pa.

One 10-ton, 1-motor bridge only, span, 68 feet.

Republic Iron & Steel Co., Youngstown, O.

One 10-ton, 3-motor crane, span, 65 feet.
Two 7½-ton, 3-motor double hoist cranes, span, 66-feet 8 inches.

Canton Steel Foundry Co., Canton, O.

Two 10-ton, 4-motor cranes with 5-ton auxiliary hoists, span, 60 feet.

Turkey Creek Stone, Clay & Gypsum Co., Pueblo, Colo.

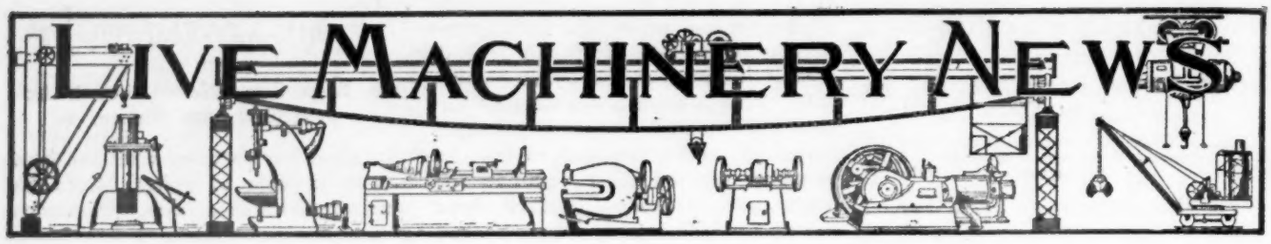
One 15-ton, 4-motor crane, with 3-ton auxiliary hoist, span, 75 feet.

Lackawanna Steel Co., Buffalo.

Two 165-ton ladle cranes, span, 58 feet 8 inches.
One 75-ton ladle crane, span, 55 feet 10 inches.

Youngstown Sheet & Tube Co., Youngstown, O.

Two 10-ton, 3-motor double hoist cranes, span, 77 feet 2 inches.



The past week was a very active one in the New York machinery market and a large volume of business was booked in nearly all lines of equipment. The total was made up mainly of numerous small lots and this is the kind of business which is regarded with most satisfaction by the majority of dealers. The constant improvement in the demand for machinery which has continued since the first of the year was again reflected in last month's business. Reports from the trade in general indicate that the aggregate of business transacted in July was 10 per cent larger than that of June. The largest single inquiry to come into this market the past week was one put out by the National Steel Car Co., Hamilton, Ont., calling for 150 machines and involving a total value of several thousand dollars. The cranes on this list, six in number, will be ordered immediately and the remainder of the machinery will be closed for shortly. The fair-sized list put out by the Missouri Pacific at St. Louis has been distributed. The Jersey City Technical High School has purchased five or six additional machines and a considerable quantity of hand tools. The Newport News Ship Building & Dry Dock Co. is preparing to distribute orders on a list calling for about $20-000 worth of machinery.

In Pittsburgh, machine tool dealers report that an unusually large number of inquiries, calling for equipment of all description, have come into the local market the last week. Prospects for increased business, with better prices prevailing, have caused a more optimistic feeling among dealers, who predict August will be a better month than July. Reports from this district indicate that business has been well distributed, causing a general feeling of satisfaction among sellers. All of the mills are busy, and most of them are running at capacity. Advanced prices for tools are predicted.

In Cleveland, the increase of business in machine tools, apparent during the closing weeks of last month, has continued into August. Dealers are optimistic over the outlook and report that there are indications that some manufacturing concerns will soon make improvements and extensions which have been held in abeyance until the stability of business conditions was determined. Some tools have been placed at the Collinwood shops of the Lake Shore & Michigan Southern railway, and dealers are expecting railroads to send out inquiries soon. The demand for tools is well scattered and inquiries while largely for small lots, are in satisfactory quantity. The large list of the Lima Locomotive Corporation has been partly closed, although the companies securing the orders have not been formally notified.

In Cincinnati, most of the business being done by machine tool manufacturers at present is in foreign territory, although the demand from nearby towns and cities has not declined to any noticeable extent. Judging from the orders received in July, and the inquiries already in the market, August should prove to be a good month, although this time of the year is generally considered as the dull season. Manufacurers of lathes are still enjoying the best business, but makers of other metal working machinery are beginning to receive more and better contracts, and the outlook is that the business placed here during the next month will be more evenly distributed than formerly. One large manufacturer of small electrical machinery reports that it has increased its force of experienced workmen in order to take care of the contracts recently closed, and this seems to be the case generally with similar plants in this vicinity.

Machine Tools

The Allentown Boiler Works, Allentown, Pa., expects to be in the market shortly for a large air compressor.

The Missouri Pacific railroad, which recently issued a list of specifications for machinery in the St. Louis district, to be installed at its various shops, has closed for the equipment.

The National Steel Car Co., Hamilton, Ont., has issued a list of specifications for 150 machines of various types for installation at its plant at Hamilton. The list is said to involve a total value of several hundred thousand dollars. On it are specified six traveling cranes, which will be ordered at once. The remainder of the list will be distributed without delay.

The Newport News Ship Building & Dry Dock Co., Newport News, Va., has taken bids on a list calling for about $20,000 worth of machinery. The machines are 10 or 12 in number and include lathes, drill presses, shapers, punches, etc. The list will be distributed within three weeks.

The board of education, Jersey City, N. J., has just purchased five or six additional machines for the new technical high school, that city. These machines were specified on a supplementary list issued recently. The board has also closed for a large quantity of hand tools, such as hammers, wrenches, chisels, etc.

New Construction

The Northern Steel Co., with offices at Toronto, Can., will erect a large plant at Welland, Ont. Employment is to be given to 150 men by February. The company is capitalized at $1,200,000.

An addition, 64 x 258 feet, three stories, is being built to the factory building of the Timken-Detroit Axle Co. at Detroit. Orders have been closed for machinery and equipment.

The Scullin-Gallagher Iron & Steel Co., St. Louis, advises that it is not going to build a machine shop, but is now building a new chipping shop.

The Tomahawk Steel & Iron Co., Tomahawk, Wis., is rushing work on its new plant. The old buildings are being dismantled and razed as the

new work progresses and the company is thus able to keep up its normal production. It is expected that the new work will be completed by Aug. 15.

The board of directors of the Fremont Furnace Co., Fremont, O., has decided to erect a warehouse, 50 x 160 feet, for storage, shipping and other purposes.

The Duckworth Chain & Mfg. Co., Springfield, Mass., is to erect an addition to its plant. The new structure will be of brick, mill construction, 40 x 60 feet, three stories.

The Saranac Machine Co., which is to remove from St. Joseph, Mich., to Benton Harbor, Mich., expects to begin construction of its shop in the near future. Material is already on the grounds.

Work has been begun on the foundry and machine shop which is being established at Edmonton, Alta, by the Western Foundry & Machine Co., for building stationary, gasoline and steam rotary engines. The buildings are to be completed by Sept. 15.

The Blakeslee Forging Co., Plantsville, Conn., advises that it is preparing to erect three new buildings, a machine shop, 30 x 160 feet, three stories, a forge shop, 50 x 220 feet, and a new annealing plant, 32 x 76 feet. The company will purchase no new machinery.

The Milwaukee Woven Wire Works has been granted a permit to erect a factory at Thirtieth and Clarke streets, Milwaukee, Wis. The buildings will be of brick and concrete construction. The main building will have dimensions of 116 x 119 feet.

Contracts for the erection of a plant for the Sharon Steel Products Co., Sharon, Pa., are expected to be let within a short time. The company will make all-steel barrels and washboards. Its plant will be near that of the Petroleum Iron Works.

The Worcester Pressed Steel Co., Worcester, Mass., has begun the erection of a pickling shop at its plant in Greendale. The building will be a one-story structure, 66 x 108 feet. Work upon a press shop, 90 x 90 feet, will be begun next month.

An addition, 46 x 90 feet, to be completed in 60 or 90 days, is being built to the plant of the Fairmont Machine Co., Fairmont, Minn. The addition will be of steel construction, and when completed will double the capacity of the plant.

The National Brake & Electric Co., Milwaukee, is said to be planning the addition of an iron foundry to its works, the dimensions being 80 x 240 feet, with two wings, each 60 x 120 feet, and equipped with new cranes and other foundry machinery throughout.

The Pratt Drop Forge & Tool Co., successor to the Ducharme Mfg. Co., Shelburne Falls, Mass., has bought a five-acre tract on Wellington street, that city, and will erect a modern fireproof plant on the site. The main building will be 40 x 100 feet and there will be a forge shop 40 feet square. W. M. Pratt is president of the concern and M. Z. Woodward is treasurer.

The Mercer Automobile Co., Trenton, N. J., is about to begin the construction of an addition to its plant which will be 160 x 160 feet in dimensions and of the saw-tooth type. The extension will house the assembling, finishing and painting departments as well as the tin shop, riveting shop and store room. Considerable new machinery has been purchased for the addition.

Power Plant Equipment

H. M. Byllesby & Co., Chicago, are reported to have purchased the electric light plant at Eminence, Ky. It will be enlarged so as to provide day service and to furnish service to New Castle, Pleasureville and other neighboring communities.

Samuel Insull, Chicago, is reported to have purchased through Attorney Bernard Flexner, of Louisville, Ky., the electric light plant at Lawrenceburg, Ky., for $25,000. The Insull interests have recently acquired other interior Kentucky plants, and are pursuing a policy of improvements.

Miscellaneous

The S. Freeman & Sons Mfg. Co., Racine, Wis., has just made delivery of a large steel cement kiln to a firm at Lincoln, Neb. The cylinder is 8 feet in diameter, 125 feet in length, and weighs 71 tons.

The McDonough Mfg. Co., Chippewa Falls, Wis., has just made delivery of a large Laursen automatic pumping engine. The pump was purchased for the Thermopolis drainage and irrigation project at Thermopolis, Wyoming, and is of 500 gallons per minute capacity.

The plant of the Kansas City Structural Steel Co., located in Kansas City, Kans., is to be enlarged that the company may fill a contract for steel for a smelter at Jerome, Ariz. The contract is for $800,000. The plant, employing 400 men now, is running night and day.

The Hartman-Greiling Co., Green Bay, Wis., boilers, marine work, and machinery, has installed a large Hanna hydraulic riveting machine. The shops are equipped with modern machinery throughout and the buildings have been completed only recently.

The Carroll Foundry & Machine Co., Bucyrus, O., has received an order for soaking pits, pit covers and cylinders from the Algoma Steel Corporation, Sault Ste. Marie, Ont.

The J. N. La Pointe Co., Marlboro, Mass., manufacturer of broaching machinery, will move to its new plant at Britain, Conn., about Sept. 1. This plant will contain about 10,000 square feet of floor space. The company is purchasing some additional machinery.

The Graf-Webb Iron Mfg. Co., Louisville, Ky., will begin at once the reconstruction of its mounting and nickeling departments, which were damaged in a fire at its stove foundry last week. The foundry proper was not damaged and work there is being continued.

Advising in regard to its recent incorporation, the Bartow Iron Ore Co., Bridgeport, O., says that it expects to mine from 50,000 to 75,000 tons of brown ore per year in Bartow county, Georgia, and proposes to install a complete brown ore washing plant. The company will be in the market for from 35 to 40-pound rails, a dinky, three yard cars, side dump, a steam shovel of the traction type, and an 8-inch pipe.

Receivers of the Wabash Railroad Co. have filed a request in the United States district court at St. Louis for permission to sell $2,500,000 additional receivers' certificates. If the request is granted the money will be used in betterments and extensions. It is planned to construct new locomotive shops at Decatur, Ill., at a cost of $500,000, additional yards at Detroit to cost $400,000 to double part of the Detroit division, on which $500,000 will be expended, and to erect water tanks and coaling stations and purchase 20 new locomotives at a cost of $530,000.

The Allis-Chalmers Co., Milwaukee, Wis., has made two installations of turbines at Fond du Lac, Wis., within a month. A 1,000 kilowatt turbine was built for the Eastern Wisconsin Railway & Light Co. at Fond du Lac, and a 750 kilowatt unit for the Fred Rueping Leather Co., which has electrified its entire tannery and leather plant, one of the largest in the country. One hundred and fifty individual motors in various horsepower sizes are used in the Rueping plant at this time. The Allis-Chalmers Co. recently installed a large turbine generator unit in the plant of the Janesville Electric Co., Janesville, Wis.

New Buyers

(In order to assist the post office in delivering letters to new concerns, it is suggested that the names of incorporators be written in the lower left hand part of every envelope addressed to such new companies.)

The following manufacturing companies have filed articles of incorporation:

Victor Auto Parts Co., Cincinnati; $20,000; by Wm. J. Corcoran, Edward S. Corcoran, John L. Corcoran, Harvey B. Corcoran and H. R. Kerana.

Ashland Foundry Co., Ashland, O.; $15,000; by Maurice V. Sample, Robert McIntosh, Ralph Helbert, Edward P. Helbert and A. W. Fritzinger.

Apollo Iron & Steel Co., Pittsburgh; $5,000; by J. A. Lager, J. C. Swearer and R. T. Russell, Pittsburgh.

Mutual Motor Car Co., Buffalo; $125,000; to manufacture motors; by A. Poppenberg, F. C. Carter, O. E. Yeager, Buffalo.

John Deere Wagon Co., Moline, Ill.; $500,000; to manufacture vehicles; by G. N. Peek, G. W. Mixter, B. F. Peek.

New Castle Steel & Iron Co., Pittsburgh; $100,000; by W. H. Schroeder, E. N. Ohl, George P. Rhodes, A. B. Berger and E. H. Brainard, Pittsburgh.

Positive Clutch & Pulley Co., Buffalo; $125,000; to manufacture clutches, pulleys, machinery, etc.; by J. M. O'Day, L. F. Gulick, D. B. Hellings, Buffalo.

George Anderson Co. of America, Newark, N. J.; $125,000; engineers, machinists, iron and steel founders, etc.; by C. A. Grice, H. B. Reed, G. Beavers, Newark.

Darby Motor Car Co., Westfield, N. J.; $25,000; to manufacture automobiles, motors, motorcycles, etc.; by L. D. Darby, H. C. Darby, A. B. Darby, Westfield.

Indianapolis Tool & Mfg. Co., Indianapolis; $10,000; to do general machine work; by directors, Charles Herdick, B. F. Herdick and William Herdick.

Watson Electric Co., Paterson, N. J.; $50,000; to manufacture electric motors, dynamos, machinery, etc.; by Chas. P. Watson, A. B. Watson, John L. Griggs, all of Paterson.

H. L. Gilman Engineering Co., Boston; capital stock $300,000; directors Reuben K. Hogarty, president, William G. Burns, 9 Wayne street, treasurer, John Moir.

Massachusetts Iron & Metal Co., Chelsea, Mass., capital stock, $10,000; directors, Louis Berlinger, president; Simon Broomfield, treasurer, and Morris Broomfield.

Wright Mfg. Co., Newark, N. J.; $100,000; to manufacture metal novelties; by C. H. Wright, F. W. Goerdes, A. F. Wright, all of 70 Morris avenue, Newark, N. J.

Consolidated Motors Ltd., Toronto; capital $40,000; to manufacture motors and other vehicles; provisional directors: Alfred Hunter, Andrew H. Paterson, Garrett Tyrell and others.

The Arter Auto Carriage Co., Cleveland; $20,000; manufacturing and repairing automobiles and other self-propelling vehicles; by John G. Arter, B. Hexter, James B. Ruhl, C. A. Chapman and C. M. Lemmon.

Valley Machine Co., Parkersburg, W. Va.; $150,000; machine shop and foundry; by B. B. Putnam, Marietta, O.; James Turpin, Dayton, O.; Fergus O'Connor, R. G. Stiles and John Marshall, all of Parkersburg.

Garrison Gasoline Engine Specialties Co., Camden, N. J.; $125,000; to manufacture gasoline engines, devices, etc.; by F. A. Kuntz, F. S. Saurman, F. S. Muzzey, all of 304 Market street, Camden.

National Coupling Mfg. Co., Boston; capital stock, $5,000; to manufacture and deal in machinery, etc.; directors, Charles G. Lenfest, president; Louis V. Gosselin, treasurer, and Roland C. Hilton.

The Hackett Motor Co., Ltd., Oshawa, Ont.; capital $350,000; to manufacture motors, gasoline engines, etc.; provisional directors, John Gray, Frederick H. Storey and Trevor G. Merton.

Sault Mfg. Co., Worcester, Mass.; to manufacture and deal in machinery; capital stock, $100,000; directors, William A. Sault, president; Clarence R. Sheeter, treasurer, and R. Burton Chase.

Smith, Dudley, Stuart Co., Ltd., Burlington, Ont.; capital, $40,000; to manufacture machinery for putting up canned goods, etc., provisional directors, Job Dudley, Luke Smith, James Stuart and others.

Missouri Gas Heater & Appliance Co., St. Louis; $25,000; to manufacture boilers, economizers, etc., to be used for heating, etc.; by James J. Rohan, Hugo F. Urbauer and Robt. A. Crabb.

The Lewis Grease-Cup Co., Camden, N. J.; $100,000; to manufacture compressed air grease cups, electrical devices, etc.; by J. A. Lewis, William L. Ford, M. G. Ryan, all of 301 Market street, Camden.

Badenhausen Boiler Co., Jersey City, N. J.; $25,000; to manufacture watertube boilers, etc.; by J. P. Badenhausen, H. C. Badenhausen, both of 90 West street, New York City; D. F. Plahn, J. W. R. Bessen, both of 1 Newark street, Hoboken.

Vesta Mfg. Co., Rutherford, N. J.; $10,000; to manufacture hot water heaters, etc.; by Edward A. Brown, 2 Elliot terrace, Rutherford; S. Cohen, 135 Broadway, Samuel Ginsberg, 600 West 169th street, both of New York City.

The Canadian Tool Steel Co., Ltd., Toronto; capital, $600,000; to carry on business as foundrymen and manufacturers of metals and tools; provisional directors, Frank H. Phippen, Gerard G. Ruel and Reginald H. M. Temple.

Pugh Auto Chain Co., Webster Groves, Mo., $5,000; to manufacture, sell and deal in auto chains, etc.; by Arville Vancleave, C. C. Knight, St. Louis; John Schulz, Harry Schulz, Webster Groves; Edward Brocksmith, Maplewood, Mo.

J. P. S. Sales Co., Newark, N. J.; $125,000; to manufacture iron, steel, manganese, copper, etc.; by George D. Mulligan, 71 Washington street, H. L. Koenig, 416 Ridge street, Newark; L. R. Campton, 194 Oakwood avenue, Orange.

Ideal Fire Protector Co., West Orange, N. J.; $25,000; to manufacture and install fire detector apparatus, electrical and mechanical devices, etc.; by Chas. H. Kayser, West Orange; J. E. Florence, Wm. H. Hampton, New York City.

Warwick Motors Co., Newark, N. J.; $125,000; mechanical engineers, brass founders, machinists, etc.; by

J. D. Nicol, 197 Mt. Pleasant avenue; E. O. Woodruff, 93 Delavan avenue; M. E. Hidden, 292 South Ninth street, all of Newark.

Twinvolute Pump & Mfg. Co., Irvington, N. J.; $125,000; mechanical and electrical engineers, machinists, to manufacture pumps, etc.; by F. C. Prindle, 1725 Park road, Washington, D. C.; L. M. Fish, Newark, N. J.; John B. Ketcham, 2010 Morris avenue, New York City.

General Industrial

The International Saw & Tool Co., Columbus, O., has changed its name to the Novelty Works of Columbus, O.

The Northwest Stove Co. is planning to locate a foundry in Salem, Ore. Citizens are attempting to obtain a bonus for the company.

A schedule filed by Receiver Geo. L. Marshall, shows the Dayton Globe Iron Works Co., Dayton, O., to have liabilities of $175,773.93, and assets of $155,901.

Burnside, Ky., is contemplating the construction of a bridge over the south fork of the Cumberland river. The estimated cost of the structure is $25,000.

John R. Key, Clinton, Mo., recently went to Joplin, Mo., to look for a factory site for the Industrial Iron Works, Clinton, which manufactures gas engines.

The Superior Steel Plant Construction Co. has been incorporated at Superior, Wis., for $100,000 by J. W. Wirtz, W. E. Hurst and Robert Stewart.

The United Refrigerator & Ice Machine Co., Kenosha, Wis., has broken ground for two large buildings to cost $75,000. The machine shops will be more than doubled in size by the addition.

The Virginia Bridge & Iron Co., Roanoke, Va., has the contract for the erection of an $11,000 bridge over the north fork of the Kentucky river at Hazard, Ky. The contract was let by the Hazard Bridge Co.

The Thew Automatic Shovel Co., Lorain, O., advises that the recent increase in its capital stock covers a stock dividend and does not necessarily mean extended improvements to its plant.

The Milwaukee Hardware Mfg. Co., of Waukesha, Wis., under the management of L. A. Ashley and Charles H. Foss, is opening a brass foundry at St. Paul avenue and State street. Operations will start at once.

The Anti Friction & Power Saving Railway Truck Co., Paterson, N. J., recently incorporated, advises that it will manufacture railway trucks, but detailed plans are not ready as yet for publication.

Slegman Bros., Philadelphia, manufacturers of steel springs for furniture, will locate in Binghamton, N. Y. One-third of the output of the firm is contracted for by the Binghamton Lounge Co.

The Allentown Rolling Mill, Allentown, Pa., whose machine shop recently burned down, has completed a new temporary structure in which it has installed a complete line of new machinery.

Two buildings will be built at Winton Place during the coming fall by the Cincinnati Traction Co., Cincinnati. They will be 18 x 400 feet, and will be used for storing and repairing cars.

The Worcester Cold Storage & Warehouse Co., Worcester, Mass., is to double the size of its present plant on Franklin street, that city, by the erection of a $125,000 building of brick, concrete and steel construction.

The Levi Iron & Hide Co., Kokomo, Ind., advising in regard to its plans, following the recent fire at its works, says it will rebuild on a much larger scale and in the same location. The fire caused a net loss of $2,500.

The Rockwood Sprinkler Co., of Massachusetts, with yards and warehouses on Harlow street, Worcester, Mass., and offices in New York, has bought a site on Sackville street, Worcester, for factory and shipping depot.

The Hall Automatic Coupler Co., Buffalo, has been incorporated with a capital of $250,000, and will manufacture and install all kinds of hose, faucets, etc. The incorporators are L. M. Hall, E. B. Hall, H. E. McCoy and L. Shultes.

The city of Louisville, Ky., will probably build an asphalt plant, following the inspection of others elsewhere. A garbage reduction plant may also be installed. M. W. Neal, of the board of works, is in charge of the plans.

A $40,000,000 mortgage has been placed on record at Crown Point, Ind., by the Indiana Steel Co., following the action of the United States Steel Corporation in planning for additions to the Gary works, upon which the mortgage has been placed.

The Nashville, Tenn., Bridge Co. has been awarded the contract for the erection of a steel bridge over Overall creek near Nashville. The fiscal court of Davidson county awarded the contract, which amounted to $3,000.

Plans are being rushed on the new 10-story building of the Cincinnati Bell Telephone Co., Cincinnati, and it is planned to begin building operations by the end of August. The building will be of steel construction and 83 x 120 feet in dimensions. The height will be between 155 and 165 feet.

The Rock Island railroad has secured the approval of Memphis, Tenn., authorities upon its plans for the erection of a new bridge over the Mississippi river, and will let a contract for its construction in the near future. The estimated cost of the bridge is $4,000,000.

T. I. Burks & Co., Louisville, Ky., have been incorporated with $20,000 capital stock and will manufacture player piano attachments. Motor-driven wood-working machinery will be purchased, though not much will be needed at present. T. I. Burks is general manager.

The Richardson Paranaplane Co., Dayton, O., which is considering the establishment of a combined aeroplane and trolley wheel plant in Louisville, Ky., recently purchased some of the property of R. O. Bubel Jr. & Co., of that city, which company had gone into bankruptcy.

According to plans, the plant of the Platt Iron Works, Dayton, O., will be sold on Aug. 22, if the arrangements made by the creditors' representatives with Referee McConnaughey, are carried out. It is proposed to dispose of the plant free of $800,000 bond mortgage.

The Under Feed Stoker Co. of America has filed articles and a statement to do business in Wisconsin. The authorized capital is $701,000 and the Wisconsin interest is given at $15,000. Jackson B. Reuter, of Madison, Wis., is noted as state representative for Wisconsin.

The Chicago Brass & Bronze Co. is negotiating with the Business Men's Association of Waukesha, Wis., for the re-location of its works. The association plans to transform the former Wisconsin Central railway car shops at Waukesha into a foundry and machine shop.

The Moore & Scott Iron Works, San Francisco, has been awarded an order by the Western Pacific Railway Co., for a steel ferry boat, which will ply between Oakland and San Francisco. The vessel will be built at the shipyard of the Moore & Scott works and will cost approximately $300,000.

The Noelke-Richards Iron Works, Indianapolis, has the contract for 2,200 tons of steel which will be used in the construction of the 15-story office building of John P. Starks, in Louisville, Ky. The Selden-Breck

Construction Co. has the general contract.

The Cambridge Steel Plow Co., Cambridge, N. Y., advises that it was recently organized with an authorized capital stock of $100,000 for the purpose of manufacturing walking plows, sulky plows, horse hoes and markers. The business was established in 1845 and has enjoyed a large growth since that time.

Charles J. Knecht, president of the Knecht Planer Co., Cincinnati, has written the mayor of St. Joseph, Mich., stating that the company is looking for a factory site in a city with good railroad facilities and in which a foundry is located. The Knecht company manufactures planers and machine tools.

A committee of Watertown, Wis., citizens has been appointed for the purpose of raising a subscription to establish a malleable iron foundry in that city. It is planned to build a foundry with a probable output of 2,500 tons, estimated to cost $40,000. The project is being urged by Hugo Guterkust, Milwaukee.

Creditors of the Windsor Mfg. Co., Kenosha, Wis., will be paid in full under the order of the court confirming the sale of the property by the creditors' committee to W. W. Vincent and V. L. Alward for $76,694.71. The total claims against the company were $72,966.77, the largest claimant being the American Steel & Wire Co., $27,966.77.

The old plant of the Allentown Foundry & Machine Co., Allentown, Pa., which company failed some years ago, has been purchased by Jack Mack, formerly one of the proprietors of the Mack Bros. Motor Car Co. Mr. Mack is now making changes in the plant with a view to adapting it to the manufacture of motor fire apparatus. He expects to begin operations in five or six weeks.

Claiming that Madison, Wis., does not encourage manufacturers, the Loop Nut Mfg. Co. advises that it will probably leave that city. It has under consideration the following places as a location: Rockford, Elgin, and Woodstock, Ill., and Janesville and Beloit, Wis. The company proposes to build a plant costing from $25,000 to $50,000 in order to supply the increasing demand for loop nuts. Many orders for larger sizes have been declined as the company's works is not equipped to manufacture them.

The Ames Motor Car Co., Owensboro, Ky., recently reorganized, with a capital stock of $100,000, advises that plans for expansion have not been fully developed and in consequence it cannot at present give out information in regard to proposed new buildings. Officers of the company are: President, F. A. Ames; vice president and general manager, George W. Yeoman; secretary, H. M. Robins; treasurer, Gale B. Smith; superintendent, Charles T. Smith.

The factory of the Wrought Iron Range Co., St. Louis, in course of construction at 5661 Natural Bridge road, is nearing completion, and will be ready for occupancy within the next 30 days. Eleven and one-half acres of ground are comprised in the factory site. All the buildings are fire-proof, being of brick or re-inforced concrete. The main building is two stories high and 312 x 314 feet in dimensions. The Wrought Iron Range Co. will employ 350 men in the new plant.

The General Chemical Co. is having 15 corrugated iron and brick buildings erected for its proposed works just below Marcus Hook, near Chester, Pa. The cost of the plant is estimated at $1,000,000. The works will be placed in operation on Dec. 1, if present plans do not miscarry. It is said that the Camden, N. J., plant of the company will be abandoned and that it will be removed to the Marcus Hook site. The manufactory will be used in the production of sulphuric acid and its by-products. J. E. Eggleson, Camden, N. J., will be active head of the new plant, it is said.

The Aughe Plow Co., Dayton, O., advises that it has incorporated with a capital stock of $15,000, and has taken over the business of The Parrott Mfg. Co., manufacturer of the Aughe plow. The Aughe company will continue at the same location to manufacture this plow, which has been on the market since 1848, and will increase the facilities as conditions warrant. There is an ever increasing demand for this plow, the company says, and the business will be conducted on a larger scale than heretofore. The officers of the company are: President, Fred W. Nolt; vice president, Edward H. Nolt; secretary-treasurer, D. I. Harshman. Both Fred W. Nolt and Mr. Harshman were connected with the Parrott Mfg. Co.

The McAlester Metal Bed Co, McAlester, Okla., has been chartered and has taken over the business of the Ohio Iron & Brass Bed Co., which has been operating in McAlester. The new company has a capital stock of $125,000. All of the old stockholders, residents of Eaton and Dayton, O., will retain their stock. They are David J. Miller, superintendent; Judge Elan Fisher, C. W. Royer, J. H. Royer, Eaton, and C. R. Gilmore, Dayton. The incorporators of the new company are David J. Miller, William H. Fuller and O. C. Jacobs, the last two being residents of McAlester. The factory has 40,000 square feet on floor space, and a shipping room, 50 x 125 feet, will be erected at once. The plant has confined its product to brass and iron beds, but the manufacture of springs will begin soon.

The plant of the Catasauqua Castings Co., Catasauqua, Pa., consisting of a group of buildings, 75 x 375 feet, with an ell, 75 x 175 feet and comprising an office, malleable and gray iron foundries, pattern shop, pattern storage and machine shop, is being offered for sale. The company failed last February. It was capitalized at $50,000 and had bonded indentures to the amount of $75,000. Frederick Conlin, now president of the Samuel L. Moore & Sons' Corporation, Elizabeth, N. J., was president of the company. Negotiations for the sale of the plant will be in charge of Edwin Thomas, Catasauqua, chairman of the bondholders' committee, and Frank Jacobs, Catasauqua, attorney for the bondholders. The plant is located on a site of three acres and has shipping facilities on the Lehigh Valley, New Jersey Central and Reading railroads.

Trade Notes

The Commercial Iron & Supply Co., dealer in iron and steel scrap, railway and mill supplies, bar iron, etc., has opened an office at 853-877 Front street, Cincinnati.

The Vulcan Iron Works, Wilkesbarre, Pa., has established an office at 913 McCormick building, Chicago.

The Vixen Tool Co., Philadelphia, is to establish an office in Worcester, Mass., where it will be located in the Slater building, 390 Main street.

Fires

The Gates foundry, Wilkesbarre, Pa., a one-story frame building, was seriously damaged by fire recently. The loss is estimated at $1,500.

The Insley Mfg. Co., manufacturer of structural iron, recently sustained a loss of $12,000 by fire at its plant in Indianapolis. Many valuable patterns and blue prints were destroyed.

The plant of the Graf-Webb Iron Foundry, Louisville, Ky., was damaged by fire recently to the extent of about $20,000. Most of the loss, which includes the destruction of some valuable patterns, will be confined to the stove department. It is believed that the fire was of incendiary origin.